ORIGINAL

IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

BALLY MANUFACTURING CORPORATION,
a Delaware corporation,   )
)
          Plaintiff-Counterdefendant,   )
)
     vs.   )   No. 78 C 2246
)
D. GOTTLIEB & CO., a corporation and   )
WILLIAMS ELECTRONIC, INC., a corporation,)
)
          Defendants-Counterplaintiffs.   )

DEPOSITION

of
30(b)(6) witness

PAUL G. DUSSAULT

RE: SHUFFLE ALLEYS

FILED

JAN 1 7 1984

H. Stuart Cunningham, Clerk
United States District Court

IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

BALLY MANUFACTURING CORPORATION,
a Delaware corporation,

        Plaintiff-counterdefendant,

  vs.

D. GOTTLIEB & CO., a corporation, and
WILLIAMS ELECTRONIC, INC., a corporation,

        Defendants-Counterplaintiffs.

)))))))))))))

78 C 2246

DEPOSITION of PAUL G. DUSSAULT, taken by

the plaintiff herein, pursuant to notice, before Ruth

Anne James (being a disinterested person, not of counsel

for, or employed by any or either of the parties hereto,

or interested in the outcome of said cause), a duly

Certified Shorthand Reporter and Notary Public of the

State of Illinois, at 135 South LaSalle Street, Suite

900, Chicago, Illinois on Tuesday, April 15, 1980 commencing

at 10:10 a.m.

PRESENT:

      FITCH, EVEN, TABIN, FLANNERY & WELSH
      (135 South LaSalle Street, Suite 900
      Chicago, IL 60603) by
      MR. JEROLD B. SCHNAYER

           appeared on behalf of Bally Manufacturing
           Corporation;

MC DOUGALL, HERSH & SCOTT
(135 South LaSalle Street, Suite 1540
Chicago, IL 60603) by
MR. William T. Rifkin

       appeared on behalf of Williams
       Electronics, Inc.

       - - - - -

(Witness sworn.)

PAUL G. DUSSAULT,

called as a witness by the plaintiff herein, having been
by me, the said Ruth Anne James as notary public afore-
said first duly sworn, was examined upon oral interroga-
tories and he did thereupon depose and testify as follows:

MR. SCHNAYER: This deposition is being taken
pursuant to a corrected notice of deposition -

MR. RIFKIN: Was there one sent out in my ab-
sence?

MR. SCHNAYER: Yes.

MR. RIFKIN: I have not received it yet, have I?

MR. SCHNAYER: You should have received it,
yes.

MR. RIFKIN: By mail or by delivery?

MR. SCHNAYER: It was delivered to you.

MR. RIFKIN: Okay.

MR. SCHNAYER: And it was dated April 7, 1980,
with an attached Exhibit A, requesting certain documents
to be produced.

The notice requested a designee by Wil-
liams under 30(b)(6) to testify with respect to the design,
development, construction, operation and testing of solid
state shuffle alleys manufactured and/or sold by Williams

Electronics, Inc.

Mr. Rifkin, have you made such a desig-
nation for that entire subject matter?

MR. RIFKIN: Yes.

MR. SCHNAYER: And who is that?

MR. RIFKIN: The witness here, Paul Dussault.

MR. SCHNAYER: Thank you.

DIRECT EXAMINATION

BY MR. SCHNAYER:

Q   Mr. Dussault, could you please for the record
spell your name.

A   D-u-s-s-a-u-l-t.

MR. SCHNAYER: Now, Mr. Rifkin, have the docu-
ments which have been produced to us --

MR. RIFKIN: Williams' Nos. 5001 through 5016
have been produced as a direct response to your deposition
notice, plus the oral clarification we had on the tele-
phone, because the original deposition notice did not ask
for these documents in particular.

MR. SCHNAYER: Have you produced documents to
me which would fall under the scope of all of the dif-
ferent categories?

MR. RIFKIN: I do not know, because, Mr. Schnayer,
I have not seen your corrected notice. I have seen the

original notice, and these documents fall outside the

category of what you have asked for; but on the telephone

I indicated we would produce for you all of the developmen-

tal blueprints and instruction manuals for all of the

shuffle alley games, and we have done so. In addition,

we have produced for your inspection the parts catalog,

Williams, which has additional information on shuffle

alleys.

MR. SCHNAYER: Do you have an intention at this

time, or at some time in the future, of producing the

documents as requested in the corrected notice of depo-

sition.to the full extent of the request?

MR. RIFKIN: Well, Mr. Schnayer, it may be

that we have already done so.

MR. SCHNAYER: I suspect you have not.

MR. RIFKIN: Perhaps, then, you will point that

out as we go, and we will certainly look for anything

that we have missed.

MR. SCHNAYER: I will provide you with a copy

of -- I am sure your office has one since it was served

upon your office -- but we will provide you with a copy

of Exhibit A with the document request, and ask that a

search be made to the full extent of that document request

and documents be produced.

MR. RIFKIN: Perhaps you might begin your examination of this witness and see what he has looked for and whether or not your request has been satisfied.

BY MR. SCHNAYER:

Q   Mr. Dussault, have you looked for documents in preparation for this deposition today?

A   Yes, I have.

Q   And what categories of documents were you looking for?

A   I have looked for the instruction manuals, the schematics, and various blueprints that have been made for solid state shuffle alleys as pertains to the solid state components.

I have not looked for cabinet drawings and woodworking drawings or metal forms or things of that nature.

Q   To your understanding was there any search for documents relating to other aspects of the development of the shuffle alley, for example, memos, things of that sort, which relate to the development of the shuffle alley?

A   No.

Q   You did not look for those type of documents?

A   No, I did not.

Q   To your understanding do any of those documents

exist in your files?

A   No.

Q   Do you know if there is a place at Williams where such documents might exist?

A   No.

Q   Have you ever seen such documents?

A   No.

Q   If you were going to look for documents of that sort, who would you talk to?

A   I would have to talk to Ken Fedesna, who is my immediate manager.

Q   And why would you talk to Mr. Fedesna?

A   To see if he had any memos or correspondence from that period.

Q   Was he directly involved in working on the shuffle alley?

A   Yes.

Q   Who was in charge of that project?

MR. RIFKIN: If you know.

BY THE WITNESS:

A   I think Mike Stroll was ultimately in charge of the project, with David Poole being the manager of the development.

BY MR. SCHNAYER:

Q   Do you know who else worked on the development? This is the electronic shuffle alley.

A   Ken Fedesna did.

Q   What were his duties with respect to the project?

A   He was responsible for the electronics.

Q   Anybody else?

A   A man by the name of Randy Pfeiffer.

Q   And what were Mr. Pfeiffer's duties relating to the shuffle alley?

A   He did the initial program.

Q   Anybody else?

A   Myself. I did the instruction manuals initially.

Q   Anybody else?

A   That is all that I can recall.

Q   Do you know when the project first started to design the solid state shuffle alleys?

A   I believe it began around September of '77.

Q   When did you first start working on the project, to the extent that you worked on it?

A   When I began my duties at Williams, that was part of my responsibility, to come up with the instruction

manuals and documentation for the shuffle alley, as well as the solid state pinball.

Q   So you started working on it at its inception in September of '77, is that correct?

A   Well, I began at Williams in October of '77.

Q   Do you know what the status of the project was at the time that you arrived at Williams?

A   The electronics had been completed and the program was going through the initial phases of development.

Q   When you say initial phases of development, what do you mean by that?

A.   He was developing the program.

Q   The software program, you mean?

A   Right.

Q   And that was Randy Pfeiffer?

A   Yes.

Q   Do you know what the status of the design project was for the solid state pinball machine at the time you joined?

A   The pinball machine project had been completed; the development of the PC boards was complete; the initial software was also complete.

Q   Were any production units of solid state pinball machines being produced at that time?

A   No.

Q   Do you know when production actually started for the solid state pinball machines?

A   December of '77 -- prototype production began December of '77.

Q   I notice that you looked to refresh -- or you examined a document; this does not appear to have production numbers on it.

MR. RIFKIN: Right. I only had one. I am not producing a copy.

If you want to xerox a copy, you can have it.   .

MR. SCHNAYER: I still think that we should have some production numbers.

MR. RIFKIN: Well, you put them on.

MR. SCHNAYER: I could make this an exhibit, if you want.

MR. RIFKIN: I do not have an extra copy, or I would let you. I would be happy to let you make it an exhibit.

Off the record.

(There was a brief discussion off the record, after which the taking of the deposition was resumed as

follows:)

MR. SCHNAYER: Back on the record.

I would like to mark as an exhibit a copy

of a --

MR. RIFKIN: Jerry, do you need the whole thing?

MR. SCHNAYER: I would like to make the whole

thing an exhibit.

MR. RIFKIN: Fine.

MR. SCHNAYER: I am going to have marked as an

exhibit a parts catalog, it is Williams' parts catalog,

"Solid State Flippers and Shuffle Alleys."

The original was produced for inspection

at the deposition, and I will have a copy made of that

and that will be labeled as Plaintiff's Exhibit BD106.

(The document was thereupon marked

Plaintiff's Dussault Deposition Ex-

hibit BD106 for identification,

4-15-80.)

BY MR. SCHNAYER:

Q   Mr. Dussault, I show you a copy of a document,

Plaintiff's Exhibit BD106, and ask you if you recognize

that to be a copy of something you have seen before?

MR. RIFKIN: Can we stipulate all this, Jerry?

MR. SCHNAYER: Do you want to stipulate to it?

MR. RIFKIN: Yes.

MR. SCHNAYER: That that is a Williams' parts catalog?

BY THE WITNESS:

A   Yes, it is.

BY MR. SCHNAYER:

Q   And you were looking inside of this to answer the question of when production started with the solid state pinball machine.

A   Page 1 identifies the dates of production for both flipper games and shuffle alleys. Those are the dates of production.

Q   Have you seen a copy of this before?

A   Yes.

Q   And the dates that are listed after each of the games, of the shuffle alleys and the flipper games, that is the date that production started for that game?

A   (Witness indicating.)

Q   Now, when you answered that that is the date that production started, what do you mean when you say production started as of that date?

A   We have two types of production: we have a

prototype run and we have a production run.

The prototype run typically precedes the production run by anywhere from 8 to 10 to 12 weeks.

A certain number of games are made; they are distributed to our distributors worldwide; and after that date we go into the production run where we build all the games, and then we cease the production and we go on to the next game.

Q   Is there a period of time which production generally lasts?

MR. RIFKIN: I object, Mr. Schnayer, and I am going to not permit the witness to answer these questions.

Your 30(b)(6) notice relates to shuffle alleys, and to go into the operation of Williams at this point is not appropriate.

MR. SCHNAYER: This is a document which has been produced for the first time. It is a parts catalog, and it contains information which was not available to us previously, and it appears to me would fall under the document requests that were originally served upon Williams.

So I believe that the questions are most certainly proper in that we have never seen this document

before, and it probably should have been produced

I understand why it might not have been, but it does fall under the categories, and it might have been overlooked

MR. RIFKIN: Be that as it may, and I do not agree that that is the case, Mr. Dussault is certainly not the witness to ask these questions of; he was produced strictly for shuffle alley purposes, and we are going to have to confine our questions to that subject matter.

MR. SCHNAYER: Well, Mr. Dussault also testified with respect to the operation of the pinball machine, and I believe he was a 30(b)(6) designee.

I am after specific subject matter --

MR. RIFKIN: But there is no background that this is the appropriate witness to testify as to the production scheduling and operation of the plant at Williams, and I am just not going to permit you to elicit information from this witness.

MR. SCHNAYER: I am interested in his under-standing.

MR. RIFKIN: I am just not going to permit it, Mr. Schnayer.

MR. SCHNAYER: Well, I mean, if I have to call up somebody that does know about this --

MR. RIFKIN: Indeed you will.

MR. SCHNAYER: -- which will take more time, that is possible.

I would still like an answer from this witness. I am interested in his, what he -- he answered the question --

MR. RIFKIN: I permitted you as much latitude as I am going to permit you. He explained that document.

If you want to go beyond that document, I am sorry, I am not going to permit the witness to answer.

MR. SCHNAYER: Well, I asked him to define the term which he used at the deposition.

MR. RIFKIN: Yes, and I let him define it for you.

MR. SCHNAYER: Well, I did not get a full definition of that term.

I am interested in his understanding of what that meant. I mean, I believe that is a legitimate question, and I would like an answer.

MR. RIFKIN: Go ahead and put the question, but I am serving you notice we are not going much further.

MR. SCHNAYER: Let's have the question back.

Q   (Read by the reporter.)

        MR. RIFKIN: You may answer that question as
to your understanding.

BY MR. SCHNAYER:

Q   And that is with respect to the solid state pin-
ball machines.

A   Production typically lasts 6 to 8 weeks for a
given game; it could be longer.

Q   Now, there appear to be a list of shuffle alleys
with dates after them; do you know which of these shuffle
alleys are solid state shuffle alleys?

A   All the shuffle alleys from Topaz on down are
solid state.

        So that is Topaz, Aristocrat, Pompeii, and Taurus.

Q   Are there any others that are not listed
here that Williams currently manufactures?

A   King Tut.

Q   And that is the last one besides what is listed
here?

A   That is correct.

Q   Is that currently in production, then?

A   Yes.

Q   And the game Casino, is that an electromechanical
game?

A   I do not know anything about the games prior to Topaz. Topaz was the first solid state game, so all the games prior to that must be electromechanical.

Q   Do you have any understanding whether there was ever an attempt at Williams to design a solid state shuffle alley game other than the work that you were specifically involved in using the solid state system, adapting a solid state system to the pinball machines?

        MR. RIFKIN: Object to the question as indefinite as to foundation, time and subject matter.

        You are going to have to lay a foundation before I let him answer that question.

BY MR. SCHNAYER:

Q   You can answer the question.

        MR. RIFKIN: You can answer.

BY THE WITNESS:

A   As far as I know, there have been no other solid state shuffle alleys other than this system.

BY MR. SCHNAYER:

Q   Were there any attempts at designing?

A   Not that I am aware of.

Q   Do you have any understanding as to who were the original people who decided to design solid state shuffle alley at Williams?

A   No.

Q   If you were trying to find out that infor-
mation presently, who would you talk to?

A   I am sure that that was a marketing decision
at the time, and consequently the person who was in market-
ing or doing marketing at that time, as well as the pre-
sident of the company, would be the people to ask.

Q   The president being Mike Stroll?

A   Yes.

Q   Do you have any understanding as to what people
were involved in deciding what type of design to use for
the solid state shuffle alley, for the Williams shuffle
alleys?

A   As far as I know, the only decision was to use
the identical system from the solid state pinball.

Q   Were you involved with that decision?

A   No.

Q   When you said as far as you knew, what do you
base that answer upon?

A   We were given the mandate to develop a solid
state shuffle alley to replace the electromechanical
shuffle alley, and it was our intention to do so with
the existing components and solid state circuit boards
which had been developed for the pinball, in order not to

have to go through another complete design and development

phase.

Q   But you were not present at that time; is that

correct?

A ·   That is correct.

Q   So you must have learned that information from

some source; is that correct?

A   Well, it became obvious because that was in

fact what we were using in the development of the first

solid state shuffle alley.

          We used those boards.

Q ·   Do you know which people were actually involved

in deciding which design to use?

A   The people that I have **mentioned earlier:** Michael

Stroll, Dave Poole, Ken Fedesna.

Q   Anybody else besides those people? .

A   Those are the only people that I am aware of.

Q   And you were the only one of that group that was

not involved in the inception of the program, as far as

you know?

A   That is correct.

          As I have stated before, the design was

complete when I came to work at Williams.

MR. SCHNAYER: Mr. Rifkin, this witness, I be-
lieve, has been designated as a 30(b)(6) witness to testify
with respect to the design, development, construction,
operation, and testing of solid state shuffle alleys
manufactured and/or sold by Williams, Inc.

And he was not at Williams at the time that
the project was undertaken, and appears to lack knowledge
about the original undertakings and the things that went
on before he arrived.

MR. RIFKIN: I beg to differ with you, Mr.
Schnayer.

MR. SCHNAYER: Do you intend on producing another
witness who is familiar with that subject matter?

MR. RIFKIN: Mr. Schnayer, implicit in your ques-
tion is some statement to the effect that this witness is
not competent to testify on the subject matter as listed
in your notice.

I fail to see any reason why you would reach
that conclusion.

He has answered every question you have put
to him about that subject matter.

MR. SCHNAYER: He has answered questions to his
knowledge, but that knowledge may not be complete because
he was not there; and there were people that were there,

and therefore as to that specific subject matter, I believe

there are other people that would be more competent, es-

pecially if there were four or five people who still

work at Williams, to testify to that subject matter.

MR. RIFKIN: Mr. Schnayer, I think our obligation

under the Federal Rules is to provide a witness knowledge-

able on the subject you have asked for, not to provide

the witness most knowledgeable on every topic that you have

listed, when you list six or seven of them.

MR. SCHNAYER: Well, you could provide more

than one designee, of course.

MR. RIFKIN: Of course we could, but this witness

is capable of answering questions with respect to each

of the elements listed in your deposition notice.

MR. SCHNAYER: Well, it probably will be neces-

sary to, at some time in the future, call some other wit-

nesses back to ask them further questions about this

subject matter.

MR. RIFKIN: Well, I have no doubt that you will

be calling some of the other witnesses back, but I dis-

agree that it is necessary. I think it is a waste of

everybody's time and money.

MR. SCHNAYER: The other thing that I am in-

terested in is, it is possible at Williams that there

were some design efforts previously, in the past, with

shuffle alleys that we do not know anything about since

we do not have documentation that was produced at this

deposition --

MR. RIFKIN: Mr. Schnayer --

MR. SCHNAYER: It is possible that there are

such documents that exist, and I ask you at this time

to search for such documents, the documents that were

involved in the original decision to go to solid state

for the shuffle alley, and --

MR. RIFKIN: Mr. Schnayer, we have agreed that

we will look for memos regarding shuffle alley and see

if there are any.

We have produced all the documents we

feel were called for by the notice that was originally

issued, as clarified by your phone conversation, and I

suspect as are called for by your corrected notice.

Furthermore, the notice specifically says

"solid state shuffle alleys."

As you can determine, and as the witness

has testified, the only solid state shuffle alleys were

the ones made beginning with the game Topaz and there-

after. So, for you to talk about documents before that

time is absurd because they do not fall within your

request.

        MR. SCHNAYER: It is possible that there were

attempts to design solid state shuffle alleys that we

know nothing about, since we do not have documentation.

        MR. RIFKIN: And you won't get documentation.

        MR. SCHNAYER: And according to the specific cate-

gories listed in the notice, the corrected notice, those

documents would fall under specific document requests.

        MR. RIFKIN: Mr. Schnayer, you have a threatening

tone, and I do not understand what the purpose of it is;

what do you want from.us?

      · MR. SCHNAYER: It is not a threatening tone,

I disagree with your characterization.

        I am merely asking that we have documents

produced pursuant to a notice of deposition which was served

and that we get documents that fall under all those cate-

gories. That is all I am asking for; there is no threaten-

ing aspect of it.

        It is just merely so we get documents that

were requested. And I believe that the documents that

are at the deposition today -- I understand you said you did

not see the corrected notice of deposition -- however,

the documents that were produced today obviously are not

complete and do not fall under all of the specific re-

quests in that corrected notice of deposition.

And I am merely asking you -- I do not

know the facts -- I am asking you to look for those docu-

ments, affirmatively look for them, and make a representation

to me that they either do not exist, or produce them.

That is all I ask.

MR. RIFKIN: I will be happy to do that. I

thought I indicated that at the outset.

MR. SCHNAYER: Will that be done, can you give

me some time frame when I can get those documents, for

example, within a week or so?

MR. RIFKIN: By the end of the month.

MR. SCHNAYER: Okay. And at that time you will

either tell us the documents do not exist or that you are

producing them.

MR. RIFKIN: Exactly, right.

MR. SCHNAYER: Okay, thank you.

BY MR. SCHNAYER:

Q   Now, the dates that are listed down for each

of the specific solid state pinball machines in this

document BD 106, for example, Topaz, it says 7/78 --

A   That is a shuffle alley, not a pinball machine.

Q   Excuse me, shuffle alley. Thank you.

        Was that the date that the production

started for that particular game, to your understanding?

 A   Contrary to pinballs, on shuffle alleys there

is no prototype production. That is the production date.

Q   So it went straight in, and that is correct

with all of the solid state shuffle alleys listed?

A   That is correct.

Q   Now, were you involved in any way in the pro-

duction of those various solid state shuffle alleys?

A   In what way? What are you talking about the

production of? Did I build them?

Q   No. Were you involved; did you see them being

manufactured out in the factory?

A   Yes.

Q   And that is for all four of the shuffle alleys?

A   Yes.

Q   Did you participate in any way?

A   For each of the games after Topaz, I am the

one who is responsible for the programming that was

actually put in those games.

Q   So you were responsible for the programming

of Aristocrat, Pompeii, Taurus and then King Tut, which

is not listed?

A   That is correct.

Q   And when you say the programming, do you mean both background and foreground programming?

.A   No. The foreground programming.

MR. RIFKIN: Can I have that last answer, please?

(Whereupon the record was read

by the reporter as requested.)

BY MR. SCHNAYER:

Q   Were you involved in any way in background programming of those games?

A   No.

Q   Do you have any understanding as to whether the background programming for each of the solid state shuffle alleys produced by Williams is the same?

A   Yes, it is identical.

Q   Do you have any understanding as to the operation of the background program for the shuffle alleys?

A   Yes, I do.

Q   And how did you gain that understanding?

A   By doing the various forefrounds and by looking through the background.

Q   So you have actually examined the background program?

A   Yes, I have.

Q   And in order to do the foreground programming, you examined the background; is that correct?

A   That is correct.

Q   And do you have to have an understanding of the operation of the background before you can do the foreground?

A   Yes.

Q   I show you again document BD106, and on page 5 under the topic, "Electronics," there is a list of what appears to be components of the circuit on page 4; is that correct?

A·   Yes, it is.

Q   And this lists both components for certain of the pinball machines and certain of the shuffle alleys; is that correct?

A   That is correct.

Q   And there is a list on page 4, it says, "Phoenix, Pokerino, Flash, Stellar Wars, Pompeii, and Taurus."

      Was this the CPU board as depicted on page 4 that was used in those pinball machines and shuffle alleys?

A   Yes, it is, to the best of my knowledge.

Q   Now, on page 5, there is an integrated circuit listed as IC17, and for --

MR. RIFKIN: Off the record.

(There was a brief discussion off the record, after which the taking of the deposition was resumed as follows:)

BY MR. SCHNAYER:

Q   What I am interested in, there is a term here listed for the MC68316, which is a 2K times 8 ROM. It says, "Upper background."

Do you know what that term means, "upper background"?

A.   Yes, I do.

Q   What does that mean?

A   That means that that is the upper half of the 4K background.

Q   There is also listed under IC20 an MCM68316, which is a 2K times 8 ROM, lower background.

Do you know what "lower background" means?

A   Yes, I do.

Q   What is that?

A   That is the lower half of the 4K background.

Q   And those two backgrounds, the upper background and the lower background, that makes up the total background memory for these particular games; is that correct?

A   That is correct if you use the correct parts

for the correct games; the pinball has a different back-

ground than the shuffle alley.

Q   Do you know where it is listed where the fore-

ground program, which specific circuit elements would

contain the foreground elements -- the foreground pro-

gram?

A   IC21, 22 and 26 would contain the foreground

program.

Q   Is there any significance of the fact on page

4 of this document that Phoenix, Pokerino, Flash, Stellar

Wars, Pompeii and Taurus are contained on that page?

A   The only significance is that those are the

games that were in production during the use of that

particular version of the CPU board.

Q   And so they would all contain that version of

the CPU board; is that correct?

A   That is correct.

Q   Now, on the next page, page 6, there is also a

CPU board assembly, D-7998, and it says: "Used in the

following games: Hot Tip, Lucky 7, World Cup, Contact,

Disco Fever, Topaz, and Aristocrat."

Now, what is the significance of those

names appearing on that page?

A   Those games used that particular CPU board.

Q   Is there any change in the CPU boards other than the ones that are depicted on page 4 and 6 for any of the shuffle alleys?

A   The CPU boards that are depicted on pages 2, 4 and 6 have all been used in shuffle alleys.

Q   Do you know which ones were used in which games and shuffle alleys, the CPU board depicted on page 2 included?

A   The games which were subsequent to Taurus used the CPU board on page 2.

Q   Do you know what CPU board is used in the game King Tut?

A   The CPU board on page 2.

Q   Is there currently a project under way at Williams to change the design in any way of the control circuit for the shuffle alleys?

MR. RIFKIN: I will object to the question and instruct the witness not to answer concerning current and future developments at Williams Electronics.

BY THE WITNESS:

A   I am going to take my attorney's advice and not answer the question.

MR. SCHNAYER: I merely asked him whether there was; I did not ask him what it was.

MR. RIFKIN: I am not even going to let you start
that subject.

BY MR. SCHNAYER:

Q   So you refuse to answer the question; is that
correct?

A   Yes.

Q   What are your current duties and responsibilities
at Williams relating to such shuffle alleys?

MR. RIFKIN: You may answer, but not to the extent
that you reveal any future developments.

BY THE WITNESS:

A   My current duties include programming fore-
grounds for new shuffle alleys and programming electronic
sound, the programs for the new shuffle alleys.

MR. RIFKIN: And, Mr. Schnayer, as I feared,
information that I would have preferred not come out,
came out, so I am just not going to let you pursue this
at all any further. Future developments are just not in
this lawsuit.

BY MR. SCHNAYER:

Q   Are you in a position to know whether there
would be any current development work at Williams relating
to solid state shuffle alleys?

MR. RIFKIN: I will instruct the witness not to answer, and I object to the question.

MR. SCHNAYER: What are your grounds for objecting to the question?

MR. RIFKIN: The same as my previous grounds: it relates to future plans of the company, and it is not within the scope of this lawsuit.

MR. SCHNAYER: I am merely asking him whether he is in a position to know.

MR. RIFKIN: Well, I am not even going to let it go that far.

MR. SCHNAYER: You can instruct him to answer either yes or no to that question.

MR. RIFKIN: Yes, I could, but I am instructing him not to answer altogether. I do not think I want to disclose whether this witness is in a position to know or not.

BY MR. SCHNAYER:

    Q   Do you accept your attorney's instruction?

    A   Yes, I am.

    Q   And you refuse to answer the question?

    A   That is correct.

    Q   Are all of the pinball machines that are being manufactured by Williams Electronics that have gone into

production listed in this sheet, page 1, under "Electronics,"
to your understanding?

      MR. RIFKIN: If you know.

BY MR. SCHNAYER:

    Q   If you know.

    A   No, they are not all there.

    Q   Do you know which ones are not?

    A   Gorgar is not there, and Fire Power, our current
game, is not there.

    Q   Do you have any understanding as to whether
any feasibility studies were done to determine whether
Williams Electronics should design a solid state shuffle
alley?

      MR. RIFKIN: Object to the question as lacking
a foundation as to time or location.

      MR. SCHNAYER: Ever, ever.

      MR. RIFKIN: You can answer that question yes
or no.

BY THE WITNESS:

    A   Could I have the question again, please?

    Q   (Read by the reporter.)

BY THE WITNESS:

A   The answer to that question is no.

BY MR. SCHNAYER:

Q   Who would be the person who would best know
an answer to that question, as to whether any feasibility
studies were done?

A   I think the answer to that question is that
the initial project was the feasibility study; the fact
that the game was done was the feasibility study.

Q   In other words, to see whether it was feasible
to actually do?

A.   Right. So I think that answers your question.

MR. SCHNAYER: I would also request that any
studies, feasibility studies relating to the introduc-
tion of solid state shuffle alleys into Williams' produc-
tion would be looked for. I believe that would fall under
the specific document request.

MR. RIFKIN: All right. I will add that to my
list.

Mr. Schnayer, I should indicate to you
that at some point, and it may be before we produce any
additional documents, we are going to require from you
an indication as to whether or not you are going to
assert the Bally patent against the shuffle alleys.

That is in accord with the correspondence between Mr.

Katz and Mr. Goldenberg.

And while I am going to let this deposition

go forward today, beyond that, unless there is an allega-

tion that shuffle alleys infringe the Bally patent, I am

not sure I am going to go and get all these secondary

documents, because what we have produced today clearly,

in conjunction with the witness' testimony, would give

you enough information to determine whether or not you

contend there is an infringement.

MR. SCHNAYER: I am really not sure of what the

letters between Mr. Katz and Mr. Goldenberg state specifi-

cally; I was not involved directly in the writing.

MR. RIFKIN: I will be happy to tell you specifi-

cally.

MR. SCHNAYER: And I was not involved in that.

I thought that was taken care of before

the deposition occurred, and that there was some resolu-

tion as to that problem. I was not aware that there was

a problem.

MR. RIFKIN: Yes, indeed, there was a resolution,

but there still is a problem.

The resolution was that you could not tell

whether there was an infringement until the deposition

occurred; which is the basis on which this deposition

goes forward.

The purpose of this deposition is to obtain

discovery on shuffle alleys so that you can decide whe-

ther or not you are going to allege an infringement.

And I think it is going to be Williams'

position that unless you allege an infringement, we are not

going to go looking for further documents; although we

feel that we have at this point complied with your docu-

ment request.

So I will tell you that my commitment to

produce documents by April 30th -- and I will produce

them before if it is possible -- at this time it is my

position it is contingent upon having from you a state-

ment that shuffle alley is alleged to be an infringement

of the Bally patent in suit.

(There was a brief discussion off

the record, after which the taking

of the deposition was resumed as

follows:)

MR. SCHNAYER: Back on the record.

Mr. Rifkin, with the documents that were

produced, W5001 is an instruction manual for the Topaz

solid state game.

I am looking for a set of schematics

for that game, and I do not appear to have any.

MR. RIFKIN: Off the record.

(There was a brief discussion off

the record, after which the taking

of the deposition was resumed as

follows:)

MR. RIFKIN: Mr. Schnayer, I think we are missing

the schematic for Topaz, and I will tell you that it is

identical to the others. We will get you a copy of

Topaz. .

BY MR. SCHNAYER:

Q   Are the schematics for Topaz identical to the

schematics for the other games, such as Taurus and Pom-

peii, et cetera, of the shuffle alleys?

A   It would be identical to the Taurus game.

Taurus has some added schematics that the Topaz game

did not have.

Q   Which of the games has the closest schematic

to the Topaz?

A   Taurus.

Q   Taurus.

There is some difference between the various

games; is that correct?

MR. RIFKIN: We are prepared to stipulate, Mr.
Schnayer, that the CPU board, the driver board, the
master and slave display boards, and the power supplies
are substantially identical throughout all of the shuffle
alley games.

By substantially identical, I mean there
may be a revision of the board, but not in the architec-
ture or design of the board; and the only difference might
be to add a few more lightbulbs to a different game.

You do not have to accept that stipulation,
you may examine, but I do think that that ought to get
you started.

MR. SCHNAYER: And that is with regard --
you say they are all substantially similar; similar to
what? For example, if the Topaz game is -- well, I under-
stand, okay.

BY MR. SCHNAYER:

Q   Mr. Dussault, I show you copies of documents
produced by counsel in this litigation, W5004 and W5008.

First I show you W5004. It appears to be
a Williams' Taurus manual dated April 1979, and I ask
you if you recognize that to be a copy of something you
have seen before?

A   Yes, it is.

Q   And what is that?

A   That is the instruction manual for the shuffle
alley Taurus.

Q   And W5008 also contains the designation "Taurus"
and it is dated April, 1979. I ask you if you recognize
that to be a copy of something you have seen before?

A   Those are the schematics for the shuffle alley
game Taurus.

Q   Now, is there any significance to the date
April 1979 on the top of both of those documents?

A   That is the publication date of the documents.

Q   And is there any significance of the publication
date of the documents with relation to the date that the
shuffle alleys were either manufactured or sold?

A   They should be pretty close to identical.

Q   Were you involved in the preparation of these
schematics?

A   Not of the Taurus that specifically.

Q   You were involved in the preparation of some
other set?

A   Yes.

Q   What set was that?

A   The Topaz set I was involved with.

Q   Do you have any understanding as to the opera-
tion of the control circuit that is depicted in Taurus?

A   Yes, I do.

Q   How did you gain that understanding?

A   I gained that understanding by examining how
the board operates and by writing the documentation
for the CPU boards and driver board and power supply
board that were initially used in the solid state system.

Q   In Taurus?

A   Taurus and all the other games.

MR. RIFKIN: We will stipulate that Mr. Dussault is
familiar with the shuffle alley games and the schematics
relating thereto.

BY MR. SCHNAYER:

Q   Okay. By using these schematics, could you
tell me how the Taurus shuffle alley operates?

A   I can tell you electromechanically how it
operates, yes, and electronically.

Q   Electronically and electromechanically.

What I would like you to do is to, referring
to either of the documents, explain to me how the game
operates from a player's point of view.

You can point to a specific document or
page in a document and explain to me how that--

A   Well, looking at the cover sheet of Taurus, the games operate in the following manner --

Q   There is a picture of the game, of Taurus there; is that correct?

A   That is correct.

There is a coin door, and there are two buttons, one to the left of the coin door, one to the right of the coin door.

Putting coins into the machine will post credits.

Q   Where does that post credits?

A   Credits are not displayed.

There is a light which lights up below the left button.

Q   And that is shown just to the right of the coin door; is that correct?

A   To the left of the coin door.

Q   To the left of the coin door. Thank you.

A   Just below that there is a red indicator which will light when there are credits in the game.

Q   It will not tell you how many credits, it will just tell you --

A   It will just tell you that there are credits.

Pressing the button above that will begin

a game.

Now, on the right-hand side there is another

button; that button is used to select between the different

games.

Each Taurus game has five different games,

five different sets of rules. Those are shown on page 6

of the manual, and they are described as to what the dif-

ferences between those games are.

Q   Where are they shown on page 6?

A   In the section called "Game operation,"

Regulation Play is game No. 1; and then

Line-Up, Flash, 800, and Strike 90.

Q   And those are just different rules that would

be applied to the game?

A   Those are different rules which are applied to

the game, that is correct.

After the player has selected the game that

he wants to play, he then takes the shuffle alley puck

and slides it across the playfield.

When he does that, he makes a series of

switches which are on the playfield beneath the pins; making

those switches causes the appropriate pins to be pulled

up.

When the puck reaches the back of the play-
field, there is a back row of switches which then indi-
cates to the CPU board that the puck has gone the distance.

There is a rubber rebound which then pro-
pels the puck back with the same force that it was thrown.

Q   Is there a picture which shows the placement
of the switches underneath the pins?

A   Yes, there is. That is on page 19.

Q   And is it the case that the back row, which
are all numbered 36, a puck would have to engage at least
one of those switches as it passed that row; is that correct?

A ·   That is correct, it would have to make one of those
switches.

Q   Now, when you said that there was a portion --
after the puck had passed all the switches and hits a
certain portion of the game, is there a picture that
depicts that, and you can use that picture to explain
to me how that operates?

A   In the parts manual on page 83 there is a pic-
ture, it is called a puck rebound assembly.

Q   And as the puck hits the puck rebound assembly,
what happens?

A   The puck is then propelled back toward the

player.

Q   Is that propelled by some actuation, some force actuating device?

A   No. It is just a rubber which the puck is just bounced against.

Q   And it bounces back?

A   It bounces back. It is just rubber.

Q   And then the player can make the next shot?

A   Right.

Q   Now, if a switch which is representative of one of the pins is run over by a puck, what happens?

A   That pin is raised or the group of pins is raised, depending on the operation of that particular switch.

Q   What causes the pin to be raised?

A   The microprocessor will energize solenoids which are tied to each of the 10 pins; there is a mechanism which is actuated which releases the pin, and then it is a spring-loaded pin which is pulled up.

Q   Is there some place that that is depicted?

A   That mechanism would be shown in the parts catalog for the electromechanical shuffle alleys.

That mechanism is basically unchanged.

Q   But it is not shown in any of the diagrams

that we have here; is that correct? That being 5008, 5004.

A   But it is shown on page 78 of the parts cata-
log.

Q   And that is BD106.

A   That is correct.

       There is a coil which is shown, which is

actually --

Q   "Coil assembly" it is labeled?

A   Yes.

Q   Where is the pin connected?

A   The pin is connected here.

Q   That is to the arm that extends out?

A   Right.

Q   And when the solenoid is energized, that pulls

the pin back up; is that correct?

A   Right, that releases a latch, and the pin is

pulled up. It is spring-loaded.

Q   What mechanism is used to reset the pins when

they are up?

A   There is a pin reset motor and a number of

electromechanical devices which are used.

       The pin reset motor is shown on page 80;

and it is basically a cam motor which then pulls a re-

setting mechanism, which pulls all the pins back down.

Q   Is that motor, the signals which cause that to be actuated, do those signals emanate from the CPU board?

A   Yes, they do.

Q   Are there any other aspects of the operation of the Taurus game that you have not described from a player standpoint?

A   Well, from a player's standpoint that is all that happens.

The player plays one frame at a time, and he continues to shoot until his frame is up; and if there are more than one player, then the next player plays his frame, and then you return to the first player, until each player has played the complete number of frames for that particular game.

Q   Now, is there any place in the Taurus game where each player's score is displayed?

A   Yes, there is. There are six 4-digit displays on the Taurus game.

Q   Is it called a back box, where that is contained, is there some name for that?

A   That would be a back box.

Q   Referring also to the cover page, there appears to be a protrusion where the pins drop down from; do you see where that is?

A   Yes, I do.

Q   There appears to be something, some letters or --

A   All right, there are a group of lights there.
Those lights are used in one of the particular games.

There is also a group of lights on the
playfield in front of the first pin.

Q   Is there someplace where it is shown, where
those are?

A   Those would be directly in front of pin No. 1
on page 19; it would be a circle or a row of lamps.

Q   And we are referring to W5004?

A   That is correct.

Q   Are there also lights that are contained in
the back boxes, as you defined it?

A   Yes, there are. There are lights which indicate
strikes and spares for each individual player; there are
lights which indicate whether or not the game is over,
which of the five games is selected at the time, whether
or not the player should shoot again or is entitled to
shoot again.

There is a beer frame light, and there is
a high-score-to-date light.

All the lights that are in the game are

shown on page 24.

Q   What type of lights are those, the light bulbs?

A   Those are just No. 44 lamps.

Q   Is that a DC?

A   Yes.

Q   And do those have some voltage rating?

A   They are 6.3 volt bulbs.

Q   All of the lamps are 6.3 volt lamps?

A   Yes.

Q   Are all of the lamps that you have mentioned contained in a matrix?

A   Yes, all those lamps are in the lamp matrix.

Q   Are all those actuated by signals from the microprocessor?

A   Yes.

There is also a group of lamps called general illumination which light the features on the back box; those lights are on continuously.

Q   Are there any other solenoids that are used in the game other than the ones that we have discussed up until now?

A   There are 10 solenoids, one for each pin; there is a pin reset motor controlling solenoid; and there is a coin lock-out solenoid. Those are the only

solenoids in the game.

Q   Are there any other switches in the game other than the ones that we have discussed?

A   There are switches on the coin door -- in the coin door.

Q   Are those for diagnostic -- strike that.

What type of switches are those?

A   There are coin switches, slam/tilt switch; there is a high-score-to-date reset switch; and then there are diagnostics, which are not accessible.

Q   Do all the shuffle alleys operate substantially the same way as the Taurus does, all of the solid state produced by Williams?

MR. RIFKIN: I think I object to that question. I would like to have you break it down as to different portions, because some of them do not score the same and some of them have different modes of scoring.

You know, your question encompasses quite a bit the way you have asked it, Mr. Schnayer.

MR. SCHNAYER: I am going to get to that. If the answer is "no", I will ask him and get to those different areas where there are differences.

So I would like the answer to my first question, and then I will break it down and get to the

other areas.

BY MR. SCHNAYER:

    Q   Do you need the question read back?

    A   Well, the answer is that there are differences between each of the games.

    Q   Okay, what are those differences?

    A   The differences are the games which are actually-- the player can actually play. There are five different games in each game. Those five are not necessarily the same from one game to the next.

        In fact, Taurus and Aristocrat and Pompeii all have at least one game that they differ by.

    Q   Is the physical structure of all of the games similar, all the shuffle alleys, that is?

    A   The cabinetry is very similar between one game and the next.

    Q   What about the electromechanical aspects of the game, of all of the games?

    A   They are also very similar.

    Q   They all contain the same type of switches; is that correct?

    A   Yes.

    Q   They all contain solenoids to reset the pins?

    A   Yes.

Q   And lamps?

A   Yes.

Q   And four digits, six banks of four digits each; is that correct?

A   That is correct, also.

Q   Is there any feature that any of the games contains, other than those that have been mentioned, from a player's point of view?

A   The games -- the Topaz game incorporated electro-mechanical chimes; the subsequent games have all incorporated electronic sounds.

Q   Now, referring to the schematics that are shown --

        MR. RIFKIN: Let's take a five-minute break here. Is that all right?

        MR. SCHNAYER: Surely.

                    (There was a brief recess, after
                    which the taking of the deposition
                    was resumed as follows:)

BY MR. SCHNAYER:

Q   Do you know where the shuffle alley games are currently being assembled at Williams Electronics?

A   They are being --

        MR. RIFKIN: You can answer that yes or no.

BY THE WITNESS:

    A   Yes.

BY MR. SCHNAYER:

    Q   And do you know where they are being assembled?

    A   Yes.

    Q   Could you answer and let me know where they are being assembled?

    MR. RIFKIN: I will instruct the witness not to answer unless you have some reason for asking the question, Mr. Schnayer.

    That goes into current competitive conditions between the companies, and I do not understand the purpose of the question.

    MR. SCHNAYER: I will change the question somewhat.

BY MR. SCHNAYER:

    Q   Do you know where the Taurus game, games, were assembled?

    A   Yes, I do.

    Q   And could you tell me where that place is, please?

    A   That is at Belden Avenue.

    Q   Is there an address?

    A   I do not know the exact address. I think it

is 3631 or something like that.

    Q   Are the shuffle alleys that are produced by
Williams, at that time that Taurus was produced, is
that place the same place that the pinball machines were
produced that were produced at that time?

    A   No.

    Q   It was a different place?

    A   Yes.

    Q   And do you know where the pinball machines were
assembled?

    A   At California Avenue.

    Q   Do you know why they were being assembled at
different places?

        MR. RIFKIN: I will instruct the witness not
to answer this question or any similar question, Mr.
Schnayer.

        This is apparently to satisfy some interest,
a competitive information interest on your part, and we
are not going to supply it. It does not relate to in-
fringement or validity.

        MR. SCHNAYER: There is no intent at all to
find out any information from a competitive standpoint.

        I am merely interested in finding out if
the pins and shuffle alleys were manufactured in the same

location, and if not, why they were not, and things of

that nature.

And this is when the Taurus game -- this

is not even currently at this point.

MR. RIFKIN: Well, he has answered that Taurus

was not made at the same place, and now you are going to

ask him why, and I am not going to permit him to answer

why.

BY MR. SCHNAYER:

Q   Can I assume that when your attorney instructs

you not to answer a question, you will accept that instruc-

tion and not answer the question?

A   Yes, I will.

Q   And that particular question you refuse to

answer; is that correct?

A   Yes.

Q   Do you know what solid state pinball machine

was being manufactured at the time the Taurus shuffle

alley was being manufactured?

Again you are referring to BD106; is that

correct?

A   That is correct.

Taurus was manufactured in August of '79,

and at the time we were building Flash and Pokerino.

Q   Now, for the Taurus shuffle alley, were the
CPU boards that were used on the Taurus shuffle alley
identical to the CPU boards that were used for the Flash
and Pokerino?

A   No, they were not.

Q   In what way were they not identical?

A   The ROMs and PROMs differed.

Q   Besides that, were they identical?

A   Yes.

Q   And the ROMs and PROMs you are talking about
contain the foreground and background memory; is that
correct?

A   That is correct.

Q   Was the driver board of the Taurus game iden-
tical to the driver boards of Pokerino and Flash?

A   Yes.

Q   And how about the power supply board?

A   The power supply was the same board.

          There was one change made, in that on the
pinball machines one of the fuses was used for one pur-
pose, and on the shuffle alleys it was used for another
purpose. That is fuse F-4.

(There was a brief discussion off
the record, after which the taking
of the deposition was resumed as
follows:)

BY MR. SCHNAYER:

Q   Were there any other boards contained in the
Taurus shuffle alley which were identical to any of the
boards contained on Pokerino and Flash?

A   The master display board and the sound board.

(There was a brief discussion off
the record, after which the taking
of the deposition was resumed as
follows:)

(Whereupon the record was read as
requested.)

BY MR. SCHNAYER:

Q   Were there any boards that were different?

A   Yes. The slave display board is different.

Q   What is the slave display board?

A   That is the board which contains the display
for each of the six players.

MR. RIFKIN: Off the record.

(There was a brief discussion off
the record, after which the taking

of the deposition was resumed as
follows:)

BY MR. SCHNAYER:

Q   And that has nothing to do with the driver
circuitry for the display; is that correct?

A   That is correct.

Q   Is the CPU board that is used for the Taurus
game similar to the CPU board used for the Disco Fever
game?

MR. RIFKIN: Which board?

MR. SCHNAYER: The CPU board.

BY THE WITNESS:

A   To the best of my knowledge, with the exception
of the ROMs and the PROMs, it is the identical board.

BY MR. SCHNAYER:

Q   And how about the driver board?

A   That is the same board.

Q   And the power supply board?

A   It is the same except for the function of fuse 4.

MR. RIFKIN: Didn't we just ask these questions?

MR. SCHNAYER: That was specifically with respect
to Pokerino and Flash; I am just asking now specifically
about Disco Fever.

(There was a brief discussion off

the record, after which the taking

of the deposition was resumed as

follows:)

BY MR. SCHNAYER:

Q   Were the other boards identical as contained on

the Disco Fever that was contained on the Taurus?

A   Yes, except for the slave display boards.

Q   Which, again, were the four displays instead of --

A   Six displays.

Q   -- six displays. Yes.

Could you show me on which diagram of W5008

the output signals of the CPU board are shown for driving

the switch matrix?

A   The switch matrix is not driven by the CPU

board.

Q   Referring to page 3, could you show me where

the strobe signals occur for the switch matrix?

MR. RIFKIN: I object to the question as indefinite

and lacking a foundation.

BY MR. SCHNAYER:

Q   You can answer the question.

A   There are no strobe signals for the switches on

page 3.

Q   Referring to page 5, could you show me which

of the pins which are depicted on that page, that the

strobe signals would appear for the switch matrix?

Q   The switch matrix would appear on the lines iden-

tified as "Switch matrix drives 1 through 8," which is on

connector 2J2.

Q   And that is the lower --

A   Lower left side.

Q   -- left side of that diagram.

And those signals come from PIA II; is

that correct?

A   That is correct.

Q   And are there return lines shown on that page

from the switch matrix?

A   Yes, they are.

Q   And where are those depicted?

A   Those are identified as "Switch matrix inputs 1

through 8," which is on the upper left side, page 5.

Q   And is there a portion where the switch matrix

itself is shown in any of these schematics?

A   The switch matrix is shown in two places: on

page 11, which shows the power and coin cabinet diagrams,

that shows switches 1, 2, 3, 4, 5, 6, 7; and they are

also shown on page 12, which is the playfield switch and

lamp schematic diagram.

The upper portion of page 12 shows the other switches, switches 9 through 36.

Q   Is there any specific sequence with which the strobe signals appear on the strobe lines?

MR. RIFKIN: Mr. Schnayer --

BY MR. RIFKIN:

O   Order, if that word is okay.

MR. RIFKIN: -- my objection, which I now lodge, has to do with going over this schematic in the same detail in which you went over the schematics for Disco Fever, which in this respect are identical.

MR. SCHNAYER: Well, the strobe signals are, of course, controlled by the programming, and there may be a difference in the operation of the device as controlled by the programming which I do not know about.

MR. RIFKIN: All right, you may inquire, then.

MR. SCHNAYER: So, let me have the question, and an answer to it.

O   (Read by the reporter.)

BY MR. SCHNAYER:

O   Let's leave it at "sequence".

A   The strobe would appear first on column 5, and

then 4, and then 3, then 2, then 1.

    Q   And you are referring to page 12?

    A   Yes.

    Q   Is column 1 shown on page 12?

    A   No, it is not.

    Q   Is that shown on page 11?

    A   Yes, it is.

    Q   And would they continue to repeat after they appeared on those specific strobe lines or columns?

    A   Yes, the switches are scanned continuously.

    Q   So it would be 5, 4, 3, 2, 1 and then it would repeat, 5, 4, 3, 2, 1, and it would continue to do that; is that correct?

    MR. RIFKIN: I object to that question as lacking a foundation. You have not established that that is the case.

BY MR. SCHNAYER:

    Q   You can answer the question.

    A   Well, that -- broadly speaking, that would be the case.

    Q   Why is that incorrect?

    A   Well, it is incorrect because the number of columns that are scanned is a software-controllable item, and whether or not scanning continues or is allowed

to occur is also a software-controllable item.

Q   So there are some portions of the game where
that scanning may not continue in that order and just
keep on repeating itself; is that correct?

A   There is some portion of the game where the
scanning is inhibited.

Q   And during what portion of the game is the scan-
ning inhibited?

A   One portion which comes to mind immediately
is when the puck hits the back row switches; you do not
want to continue scanning the switches beneath the pins
as the puck is returning.

Q   Is there a switch in the back row, on the back
rubber?

A   The switch 36 is the back row switch, and that
is just ahead of that rubber.

Q   So once that is actuated, there is a period where
it is inhibited?

A   That is correct.

Q   Do you know how long that is?

A   It is 512 milliseconds.

Q   And then it would continue and start scanning
again; is that correct?

A   That is correct.

Q   Are thee any other circumstances where the scanning
would be halted for any reason, that particular order?

A   During diagnostics that order could be altered;
it is also possible to include more columns, and that is
definable by the game.

          So that order does not have to occur.

Q   But in this particular game it did occur.

A   That is correct. On this game they were scanned
5, 4, 3, 2, 1.

Q   And by that you meant it could be programmed
to be scanned a different number of columns or different
order?

A   Different number of columns.

Q   During the normal operation of the game, excluding
diagnostics, would that scanning be in that order as we
just defined, as you just defined it?

A   Yes, the scanning would be from column 5 through
to column 1.

Q   And then repeat?

A   Yes.

Q   And of course that is not including the portion
when the back row is hit and there is some inhibition;
that is the one time when there is during the normal opera-

tion of the game that there is some inhibition of that
scanning.

A   There is also inhibition of the scanning, or
the scanning -- if a switch is closed, for example, that
closure will be processed immediately as it is found,
so going from column 5 to column 4 to 3 to 2 to 1 may
involve a different amount of time depending on if switches
are closed or not.

Q   If no switch were closed, do you know the
approximate -- or do you know the exact period of time
between the scans of one column and the next adjoining
column?

A   It would be very small. I would have to look
in the listing to tell you the exact --

Q   Could you look to see what that is?

        Do you have with you any program listings
that you brought with you to the deposition?

A   Yes, I do.

Q   And are those for any specific games?

A   They are for all the games that are solid state.

Q   Shuffle alleys?

A   Shuffle alleys.

Q   And you are looking into the foreground

program -- do you have both the foreground and the back-

ground, is that correct?

A   That is correct.

Q   Is there any designation on the programs that

would identify that specific document you are looking in,

for future reference, you know, that that was the document

that was looked at?

A   It is identified as "Shuffle alley control pro-

gram, February 24, 1978."

Q   And were you involved in the preparation of

that document?

A * Of the document?

Q   Yes.

A   I do not understand what you are asking me.

Q   Were you involved in the preparation of that

document, the information in that document?

A   The information -- this is a copy of the pro-

gram that is in the shuffle alley.

Q   Were you involved in the preparation of that

original program --

A   No.

Q   -- of the shuffle alley?

A   No, I did not do the original program.

Q   But you, as you testified before, you have done

work on it?

    A   Yes, I have.

    Q   And you understand it?

    A   Yes, I do.

    Q   How many pages are contained in that?

    A   69 pages.

    Q   And that is for the background, did you say, or foreground?

    A   It is for both.

    Q   I notice you had two documents with you; is there any difference between the two?

    A   The second document is a document pertaining to the foregrounds of each of the subsequent games.

    Q   So the foreground would also be listed in that red folder?

    A   That is correct.

    Q   And you are referring to the background.

    A   It is very difficult to give you the exact time between successive strobes. The reason for that is as follows:

        It is possible -- the switches are not scanned on an interrupt-driven basis; they are scanned as a result of going through what is called an executive loop,

The interval between any two columns being scanned is dependent upon what is going on as a result of the interrupt processing in the game.

For example, column 5 can be scanned and an interrupt can occur just at that very instant, which will prevent further scanning until the interrupt servicing has been complete, and then column 4 will be scanned, column 3, column 2, column 1.

Q   Is one column of the switches scanned, switch matrix, scanned during each time the program goes through the executive loop?

A   No.

Q   What is the relationship of that?

A   During the executive loop there is a loop counter which is decremented. When that counter reaches a value of zero, then the switches are scanned; and they are scanned 5, 4, 3, 2, 1, or 6, 5, 4, 3, 2, 1, or 8, 7, 6, 5, 4, 3, 2, 1.

Q   How many times would the microprocessor have to go through the executive loop before a column is scanned?

A   Well, the scanning is performed as a subroutine, so the executive loop would call the subroutine; once the subroutine had been called, that would result in all

the switches being scanned.

Q   So as an executive loop, as the microprocessor goes through the executive loop, it reaches a point where it calls the subroutine to examine switches, and then it examines all of the switches during that subroutine in this order at one time?

A   Yes.

Q   And then it would go back into the main program, go through the executive loop, and then when it reached that point again it would go into the subroutine and it would go through the columns, and then it would repeat; is that correct?

        MR. RIFKIN: If you understand that question.

        I object to it, I do not understand it, and I think it is a run-on question with several sub-questions in it.

BY THE WITNESS:

A   . The executive program is where the control takes place for the shuffle alley; the microprocessor spends all its time in the executive program other than servicing switches and servicing interrupts.

        As part of the executive program, one of the functions is to go out and scan switches. That will happen as a result of the executive program.

BY MR. SCHNAYER:

Q   And when you say that, you mean it would scan
each of the columns separately, and go through each one of
them during each time that it went into that subroutine?

MR RIFKIN: I object to the question as compound
and indefinite. It is not clear what you are inquiring
of the witness.

BY MR. SCHNAYER:

Q   You can answer the question.

MR. RIFKIN: If you understand it, you may
answer.

BY THE WITNESS:

A   Could you give me the question again?

MR. SCHNAYER: Why don't you repeat the question?

Q   (Read by the reporter.)

BY THE WITNESS:

A   That is correct. The microprocessor checks
each column when it scans the switches.

BY MR. SCHNAYER:

Q   And every time the microprocessor went through
the executive loop, it would scan the switch matrix?

A   No.

Q   How many times would the microprocessor have

to go through the executive loop before it would scan

the switch matrix?

Q   It would have to go through the executive

loop about 168 times.

Q   And how do you know that?

A   Because there is a variable identified as a

loop counter which must be decremented prior to going

into the area which actually does the scanning of the

switches.

Q   Is there a particular line number and page

number that you are on when you answered that question?

A   I am on page 18.

Q   And any lines that you look at specifically?

MR. RIFKIN: I object to that, I am not going

to let him give you a line number of the program. I

consider that to be beyond the --

MR. SCHNAYER: I think we have already had an-

swers to questions like that one.

I just want to know specifically; there

is no intention to have these things produced now. But,

again, if I ever want to go back to this information,

it is lost unless I know specifically what line it is on

he is referring to.

And these questions have been allowed in

the past.

BY THE WITNESS:

    A   It is line 811.

BY MR. SCHNAYER:

    Q   Do you know approximately how much time occurs between the time that the microprocessor goes through and scans the switch matrix one time and the time that it goes through and scans the switch matrix a second time?

    A   The answer to that question is that there is an indeterminate amount of time between going through that process; it varies from one time to the next.

    Q   Do you know approximately how much that time is?

    A   No.

    MR. RIFKIN: I object to the question. He has testified that it is an inderterminate amount of time, and it varies.

BY MR. SCHNAYER:

    Q   Have you ever done any studies to determine how much that time is?

    A   I have not.

    Q   Have you ever seen any studies?

    A   No.

Q   Have you ever discussed that with anybody?

A   No.

Q   Approximately how much time does it take for the microprocessor to go through the executive loop?

A   That is another area that is an indeterminate amount of time.

Q   Have you ever heard of any studies to determine how long it takes to go through the executive loop?

A   There have been no studies.

Q   Have you ever discussed that with anybody, how long it takes to go through the executive loop?

A   No.

I would have to count instruction cycles and figure out if that particular instruction was executed on every pass through the loop, which, some are, some are not; and then I would have to add the interrupt time, and as a result of what would happen if switches are read.

It just varies. So I do not know what the time is.

Q   Is the method of scanning the switches, switch matrix, used in the shuffle alley identical to the method of strobing the switch matrix for the Disco Fever pinball machine?

MR. RIFKIN: May I have that question back, please?

Q   (Read by the reporter.)

MR. RIFKIN: I presume, Mr. Schnayer, that your choice of words there was inadvertent when you say "scanning" in one case and "strobing" in the other case.

BY MR. SCHNAYER:

Q   Yes, I mean scanning in both cases, yes. Thank you.

A   The technique that is used in the shuffle alley and the technique that is used in the pinball machine differ. However, they accomplish the same end: They scan the switches, one column, the next column, the next column.

Q   How do they differ?

A   Well, they differ in the same way that we have discussed in the past between one version and another version.

The way to implement a given procedure can be done in a number of ways in microprocessor language. Different registers can be used, different locations can be used, different steps can be used to accomplish the same external means.

Q   But the occurrence of strobes on the strobe

lines for the scanning of the matrix and the order in
which that occurs is identical for both the pinball
machine and the shuffle alley that we have been dis-
cussing; is that correct?

A   The order that they appear is, again, deter-
mined by which particular game we are talking about;
and I do not remember how many columns there are in
Disco Fever.

        If there are 6 columns or 4 columns in
Disco Fever, then they are not identical because there
are a different number of columns here in the shuffle
alley.

     Q .   But the repetitive nature is identical?

     A   That is also not true, because the control
programs are different.

     Q   And in what way is it not true because the con-
trol programs are different?

     A   The executive programs are different in the
pinball as opposed to the shuffle alley.

        What is being done during the interrupt
is different in the pinball as opposed to the shuffle
alley, which all affects the amount of time between
getting to the scanning of the switches.

C   But the question was not the time difference;
the question was the sequence.

A   As I have stated, the sequence is the highest
column to the lowest column.

Q   Excuse me. The exact question -- and let me --
I apologize -- was the repetitive nature of the strobing.

A   And I have tried to answer the question. As
far as the repetitive nature, the repetitive nature is
different between the two.

Q   But they both repeat in different order, but they
both repeat and continue to repeat through the operation
of the game; is that correct?

A   They both -- both the shuffle alley and the
pinball scan switches. They scan a column at a time.

Q   And then they go back and repeat?

A   That is correct, they go back and they repeat
the scanning, dependent upon the conditions that are
established in the program to do that, which govern
that.

Q   The circuitry that is used for the shuffle
alleys to generate the strobe lines and to sense switch
closures, that is identical in the shuffle alley and
also in the pinball machines; is that correct?

MR. RIFKIN: Off the record.

(There was a brief discussion off
the record, after which the taking
of the deposition was resumed as
follows:)

BY MR. SCHNAYER:

Q   You can answer the question with that qualifi-
cation included in your answer.

A   The pinballs and the shuffle alleys all use
the exact same hardware; they have different software.
That is what establishes one is a pinball versus one is
a shuffle alley.

Q   So comparable hardware would be used to strobe
the switch matrix and sense switch closures in a shuffle
alley and in pinball machines, with the qualification
that there may be a different number of columns, et
cetera, in the different games; is that correct?

A   That is correct.

Q   Now, referring to page 5, are there any pins
where signals appear to drive the lamp matrix for the
Topaz game -- excuse me -- the Taurus game?

And, of course, we are still referring
to document W5008.

The signals appear on the pins labeled "Lamp

"Rows 1 through 8" and "Lamp Strobes 1 through 8."

Q   And is there a depiction of the lamp matrix
in any of these diagrams?

A . The lamp matrix is indicated on page 11 and
on page 12 and on page 13 and on page 15.

Q   Now, on page 11, which are the lamps that are --

A   The lamp identified as "Credit Light".

Q   And on page 12?

A   The lamps identified as "Columns 1 and 2, rows
1 through 8."

Q   And page 13?

A   Columns 3 and 4 and 8 and rows 1 through 8.

Q   Page 15, was that the other one?

A   Yes. Columns 4, 5, 6, 7 and 8 and rows 1
through 8.

Q   How big is the light matrix contained in this
game?

A   It is an 8 by 8 matrix, 8 columns and 8 rows.

Q   How big was the switch matrix, by the way?

A   The switch matrix is 5 columns and 8 rows,
not all positions are used.

Q   Referring again to page 5, is there any par-
ticular order that the lamp strobes appear?

(There was a brief interruption,
after which the taking of the
deposition was recessed to 2:00
p.m. of the same day and date.)

- - - - -

BALLY MANUFACTURING CORPORATION, etc.,   )
)
            Plaintiff,   )
)
     vs.   ) 78 C 2246
)
D. GOTTLIEB & CO., etc., et al.,   )
)
            Defendants   )

Tuesday, April 15, 1980

2:05 p.m.

Parties met pursuant to recess.

PRESENT:

    MR. SCHNAYER

    MR. RIFKIN

- - - - -

        (The taking of the deposition of PAUL

        G. DUSSAULT was resumed at 135 South

        LaSalle Street, Suite 900, Chicago, Illi-

        nois as follows:)

PAUL G. DUSSAULT,

called as a witness by the plaintiff herein, having been previously duly sworn, was examined further upon oral interrogatories and he did thereupon further depose and testify as follows:

MR. RIFKIN: Mr. Schnayer, over the noon hour I took the opportunity to do a thorough investigation of the issues which you raised this morning concerning checking on the quality of the documents we have produced and the totality of the documents.

I will represent to you that we have checked with a number of people involved on the original developments and have checked exactly where a search had been made for documents.

And we are now of the opinion that you have received all development documents which exist at Williams for the solid state shuffle alleys.

I may not have worded it as broadly as your request, but I think that my intention is that I am responding to the totality of your request. And, therefore, instead of making you wait two weeks or one week, I have responded in two hours.

Do you want to pursue that? I have one other

matter.

MR. SCHNAYER: So you are representing that specifically following the scope of the document request that I had made in the corrected notice of deposition --

MR. RIFKIN: Well, perhaps you want to go down item by item, because I still have not seen it.

MR. SCHNAYER: Well, you should have a copy upstairs. If you would like a copy of it, I can make a copy for you.

MR. RIFKIN: Well, I have one upstairs, too, but--

MR. SCHNAYER: Would this include such things as any other attempts by Williams to design a solid state shuffle alley, any memos relating to either the design, the feasibility of the design, any schedules, timetables that it took to effect the design of shuffle alleys --

THE WITNESS: Yes.

MR. SCHNAYER: And there is absolutely no documentation at all at Williams relating to that?

MR. RIFKIN: Yes,there is, and you have copies of it here.

MR. SCHNAYER: Are there any test reports or test specifications that exist?

THE WITNESS: No.

MR. RIFKIN: I have one other matter, and that

matter is, I would like to inquire about the Nutting documents, which I believe we were supposed to receive today.

Can you give me some information about that?

MR. SCHNAYER: I believe that Mr. Katz and Mr. Meyers are discussing that, and I believe that there has also been some discussion with Mr. Lynch, and they are working it out.

MR. RIFKIN: Is there a possibility that Williams is not going to get the copy today for some reason?

MR. SCHNAYER: I am really not sure of the details of those discussions, and I believe they hinge upon an agreeable order, and I think most of this is precipitated by Mr. Meyers' tying in of the document production, his document production related to Colin Foster with this document production.

I do not know the specific details. I know it is being worked out, and we intend to get the documents to you and work those things out as quickly as we can. They are being discussed presently, and the documents should be to you in short order.

MR. RIFKIN: Well, it may be necessary to adjourn this deposition in order to permit me to get involved in that issue, if I do not know that I am going to have them

today.

Maybe when we take a break you can inquire as to the status; otherwise, I am going to have to call Texas.

MR. SCHNAYER: Why don't you remind me when we take a break, and we will address that issue.

Anything else?

MR. RIFKIN: No.

DIRECT EXAMINATION (Resumed)

BY MR. SCHNAYER:

Q   Mr. Dussault, I would like to go back over some material and pick up certain material, and then we will go forward with what we were discussing.

Referring to page 5, and specifically PIA II, which is used to connect the microprocessor to the switch matrix; is that correct?

A   That is correct.

Q   We discussed that the columns were strobed one column at a time; is that correct?

A   Yes.

Q   Now, as a single column is strobed, and should a switch closure appear on one of the switches in that column -- and I refer you specifically to page 12 where the switch, or portion of the switch matrix is shown -- for example, the switch that is labeled 8SW18, that is the second column.

the second row -- do you see where that switch is?

A   Yes, I do.

Q   Now, if that column was being strobed, column 3,
and that switch were closed, how would that information be
relayed to the microprocessor?

A   That information would be relayed via row 2, which
is tied to pin 8 of connector 2J3, which ultimately goes
to PIA II, line PA1, which is on pin 3.

Q   And how would that information be processed by
the microprocessor?

A   The microprocessor would take that information,
the fact that that bit is present, and would calculate a
switch number and then enter that switch into a set of counters
and into a matrix, which is in the scratch pad RAM, which
is representative of the condition of the switches.

Q   When you say it would put it into a counter and
a matrix, what do you mean by "counter"?

A   There are a number of areas in the scratch pad
RAM which are used for various purposes; there are four coun-
ters allocated for switch counters. It is used for debouncing.

Q   Is that done in a similar fashion as is debouncing
of a switch closure as is done in solid state pinball games?

MR. RIFKIN: Mr. Schnayer, from now on I am going

to object to every question where you compare the shuffle

alley to a pinball machine unless you refer to specific games,

because there are different versions of pinball and there

are different versions of shuffle alley.

          MR. SCHNAYER: Well, specifically I am talking

about the Taurus shuffle alley.

          MR. RIFKIN: And which pinball machine?

          MR. SCHNAYER: If there is a difference in the

pinball machines, then the witness can tell me that; if it

is the same for all of them, then he can also tell me that.

BY THE WITNESS:

     A Well, as we have discussed in the pinball deposition,

there are three major revisions of the background, and this

would be similar to the first revision of the background --

or the first version of the background in the solid state

pinballs.

BY MR. SCHNAYER:

     Q   Were there like revisions of the background for

the shuffle alley as there were for the pinballs?

     A   No.

     Q   When a switch is stored in the counter, could you

tell me how the debounce of the switch occurs?

     A   As well as the information being -- the switch

number information being put into the counters, there is

a value which is put into the counters.

That value is decremented by the interrupt

service routine. And when that value reaches zero, then

the switch is removed from the switch counters, and it can

be acted upon again.

It is ignored while the switch that is in

the switch counter is being debounced.

Q   So therefore, since there are four counters, four

switches can be handled simultaneously; is that correct?

A   That is correct, four different switches can be

handled simultaneously. They can be debounced simultaneously.

Q   Debounced, thank you.

When you say service routine, what do you

mean by that?

A   Our CPU board has an interrupt request timer; it

is a hardware device which generates a pulse every milli-

second, which creates an interrupt request.

The microprocessor responds to that by per-

forming the interrupt request service routine.

Q   Now, is this, the interrupt, the circuitry for

generating the interrupt, is that shown on page 3 of W5008?

A   Yes, it is.

Q   Is that IC 23?

A   Yes, it is.

Q   And the interrupt is labeled IRQ; is that correct?

A   IRQ-barred, yes.

Q   IRQ-barred.

What is performed during the service routine
of the shuffle alley?

A   During the interrupt service routine?

Q   Interrupt request service routine.

A   The switches are debounced; the lamp information
is updated every two milliseconds; the digit information
which is going to each of the player's displays is updated;
and various timing is done for switches and solenoids.

Q   Were you referring to any specific portion of the
program when you determined that?

A   I am referring to the interrupt request service
routine.

Q   Is that on any specific page?

A   Yes.

MR. RIFKIN: Mr. Schnayer, I think I had better
have your position: Do you intend at some subsequent date
to attempt to obtain the program?

MR. SCHNAYER: I have no intention at all of obtain-

ing the program.

One never knows what occurs in litigation. I have no intention at this time to obtain the program; but if there is a problem that occurs in the future, I think it is always important to know where we are talking about, just to verify.

There is no intention at this time at all to obtain the program.

MR. RIFKIN: Do you feel any need to obtain the program in order to understand the device and prove your case in infringement at this time?

MR. SCHNAYER: At this particular time I really have no opinion about it. I have never thought about the question of whether it is needed or not, so to make representation, I do not know.

I mean, we also have programs that are as sensitive, I'm sure, as your programs; so we are in the same boat. And I think that will probably cause things to be equalized.

But I have no intention at this time to obtain the program. I do this merely as a precaution. That is my intention.

BY MR. SCHNAYER:

Q   You can answer the question.

A   Page 43.

Q   Any lines?

A   Lines 1996 through 2081.

Q   Thank you.

Does the microprocessor through PIA II inter-
rogate the return lines in any fashion?

A   What do you mean by "interrogate"?

Q   To determine if there is a switch closure.

MR. RIFKIN: Mr. Schnayer, that has been testified
to innumerable times. I caution you we are not going to
go over ground again and again.

MR. SCHNAYER: This is a different circuit, and
I do not know how this particular circuit operates. It may
very well operate the same as the circuits we have talked
about in the past, but this is a different program that could
be using different techniques. I do not know that, and there
is no way to find out unless I ask the witness that question.
BY MR. SCHNAYER:

Q   You can answer the question.

A   PIA II is an input/output port. The microprocessor
reads that port, the input port, to determine the condition
of the switches, and it does so immediately after outputting
the column information, or the column strobe.

Q   And when it reads the input ports, does it read them all at the same time?

A   Yes, it does. It reads all 8 rows simultaneously.

Q   And is some signal outputted from PIA to the microprocessor which is representative of the fact that any switch closure contained in any row -- any particular column, excuse me --

A   The PIA is treated as a memory location; so as such it is connected to the address and data bus of the microprocessor, and is read directly as just as any other memory location would be read by the microprocessor.

Q ·   Are all 8 input ports read at the same time?

A   Yes, they are.

Q   And does that generate a signal which is --

A   It does not generate a signal. It is a location in memory which is being read.

Q   And how is the fact that any particular switch location contains a switch closure recognized by the microprocessor?

A   The microprocessor will read the information which is present, and if the information is not zero, that will indicate that there is a switch or switches which are closed.

Q   When it reads the information, what does it do with it? How does it process it?

A   When the information is read, the microprocessor,

first of all, determines whether or not there is anything

there; if there is nothing there, it goes on.

If there is something there, it will calculate

a switch number to determine which of the switches in the

matrix have been closed.

Q   How does it calculate a switch number?

A   It knows what column and it knows what bit; it

is a matter of arithmetic.

Q   And if a switch closure occurred and the micropro-

cessor detected that and determined which particular column

and row it was located in, what would it do with that?

A   It would -- there are two things which happen,

and this is again very similar to what we discussed in pinball

first, or the first background pinball:

There is a switch matrix and there is a stuck

switch matrix. When the microprocessor reads the PIA, it

checks to see whether or not that particular bit has been

on since the last time it checked.

If it does, then it goes and attempts to put

that switch into the switch counters, provided that that

switch is not already being debounced.

If that switch has been closed and continues

to be closed, that switch is ignored by the software because

it is considered to be a stuck switch.

So there is a switch recognition; there is
switch calculations as far as making the switch number; there
is determining whether or not the switch is presently being
debounced or is stuck or is valid.

Q   Is it true that the time period between the occur-
rence of strobes on connecting columns will vary because
of the processing of switch closures by the microprocessor?

A   For a given scan of the switches the interval
between going from one column to the next can vary depending
on how many switches are closed in a column.

Q   And that is because of the processing of the switch
closure, for example, for debounce and the other reasons
you just mentioned; is that correct?

A   Yes, it is.

Q   Let's turn now to the circuitry which is used to
actuate the lamp drive circuits.

I believe you were testifying as to that before,
and we were discussing the strobes, how the strobes were
generated; and I asked you in what particular order were
the strobes generated for the lamp matrix.

And you were looking in the program listing
to determine what that order was. Have you had a chance
to go through that and examine that and determine what that

order is?

      MR. RIFKIN: You can answer that question yes or no.

BY THE WITNESS:

    A   Yes.

BY MR. SCHNAYER:

    Q   And have you made that determination?

    A   Yes.

    Q   In what order do they occur?

    A   They occur from strobe 1 to strobe 2 to strobe 3 up until strobe 8, or column 8.

    Q   And those lines, lamp strobe 1 through lamp strobe 8, those are shown on page 5; is that correct?

    A   That is correct.

    Q   What determines in the system whether a particular strobe signal will appear?

    A   The microprocessor determines it.

    Q   And how does the microprocessor determine it?

    A   It has a counter in the scratch pad RAM which is used to keep track of which strobe should be output; or which column should be output.

      MR. RIFKIN: Can I have that last answer?

          (Whereupon the record was read by the

          reporter as requested.)

BY MR. SCHNAYER:

Q   And every time that an interrupt occurs and the
microprocessor goes into the service routine, interrupt ser-
vice routine, does that interrupt service routine generate
a strobe for the lamp matrix?

A   No.

Q   Every second one?

A   That is correct.

Q   It generates a strobe for the lamp matrix; is that
correct?

A   It does not generate a strobe; it changes strobes
every two milliseconds.

Q   And first a strobe would appear on strobe line
1, and then a strobe would appear in strobe line 2, and then
a strobe would appear in strobe line 3, 4, 5, 6, 7, 8, and
then that would repeat, keep on repeating; is that correct?

A   Yes.

Q   And that would happen throughout the entire operation,
normal operation of the shuffle alley; is that correct?

A   The normal operation, yes.

Q   Is there any time that that would not occur?

A   During diagnostics.

Q   Any other times it might not occur?

A   At any time that the interrupt service routine

was masked.

Q   And for this particular game, Taurus, is there
any portion of the game where the service routine is masked?

A   The answer is no.

MR. SCHNAYER: Could we have the question and answer
back, then?

                    (Whereupon the record was read by the

                    reporter as requested.)

BY MR. SCHNAYER:

Q   For all of the shuffle alleys is there any portion,
to your understanding, of the service routines for any of
those games where the service routine is masked?

A   No.

Q   How would you characterize the lamp matrix, the
actuation of the lamps in the lamp matrix?

            This was done, I believe, for the pinball
machine, and so I --

MR. RIFKIN: I object to the question.

BY MR. SCHNAYER:

Q   If you would characterize it.

MR. RIFKIN: In what terms are you referring to
when you say "characterize"?

BY MR. SCHNAYER:

Q   The actuation. Do you have any terms that you would characterize the actuation of the lamps in the lamp drive matrix?

MR. RIFKIN: You can answer that yes or no.

BY THE WITNESS:

A   Yes.

BY MR. SCHNAYER:

Q   And what is that?

A   The lamps are represented to the microprocessor as being a bit in memory. If that bit is on, the lamp will be turned on; if the bit is off, the lamp will be turned off.

Q   Would you characterize this system of actuating lamps as depicted in this schematic as a multiplexing system?

MR. RIFKIN: I object to that question. He has just characterized it, and now you are asking him whether he accepts a different characterization.

MR. SCHNAYER: I do not believe that was his answer to that particular question, so I am rephrasing the question in another way, or maybe I mis-- maybe the question was different than I thought it was.

MR. RIFKIN: I think you have got an answer different than you thought you would get.

BY MR. SCHNAYER:

Q   You can answer the question.

A   The question is whether or not the lamps are multi-plexed?

Well, the lamps are arranged in a matrix fashion, and they are in fact sequentially operated.

Q   Are they multiplexed?

A   Not in my understanding of the word multiplexed.

Q   Are the switches multiplexed, according to your understanding of the term multiplexed?

A   The switches are also arranged in a matrix fashion.

Q   Are they multiplexed?

A   There are different meanings to the word multiplexed.

MR. RIFKIN: If you do not understand the question, you should so state.

BY THE WITNESS:

A   There are different meanings that -- the lamps are not all operated simultaneously and the switches are not all read simultaneously.

Since they all use the same input port or output port, they are multiplexed to that particular board.

BY MR. SCHNAYER:

Q   Both the lamps and the switches; is that correct?

A   Yes.

Q   When you said multiplexed in that context, what did you mean by that?

A   I mean that at that particular port there are a number of items which are interconnected, and those items are selected by various means to allow us to distinguish one from the other.

Q   Do you have any understanding of the term "time division multiplexing"?

A   I am not familiar with that specific term.

Q   Does the operation, the actuation of the lamp matrix in the Taurus shuffle alley,is that identical to the actuation of the lamp matrix in any of the solid state pinball machines?

A   Could you qualify what you mean by "identically"?

Q   Is it done in the same way?

A   Electrically it is.

Q   When you say "electrically," what do you mean by that?

A   I mean that it has the same power lamps and the power supply are hooked up with the same wires to the same physical devices on the boards.

Q   During the occurrence of the service interrupt routine, how does the microprocessor interrogate that portion of memory representative of which lamps are turned on and off and convey that information to the lamp drive cricuitry?

A   That information is retained in the scratch pad RAM; the microprocessor reads that location, which is identified as the lamp matrix, and it applies that information to the lamp rows, which then turns on those particular rows for that particular column. The bulbs which are at the intersection of the column and rows will illuminate.

Q   Is there any variation in between the time that a signal appears, for example, at lamp strobe 1 and a signal appears on lamp strobe 2?

A   The only variation would be in the length of the interrupt service routine.

Q   Which may vary because of the processing that has to go on during that routine; is that correct?

A   That is correct.

Q   Do you know how much variation there could be in that time period?

A   It depends on what is actually going on at that particular instant.

      As I mentioned before, the interrupt service routine handles quite a few tests, and depending on how many of those tests it has to do at that particular interrupt will determine how long that interrupt service routine lasts.

Q   Have you ever been involved in any experimentation to determine how long it actually does last?

A   No.

Q   Have you ever discussed it with anybody?

A   No.

Q   Are there any other type of interrupts used in this system besides the one millisecond, or approximately one millisecond we have been discussing?

A   There is the non-maximal interrupt commonly known as NMI.   *maskable*

Q   Is that for diagnostic purposes?

A   Yes, it is.

Q   Could you point out to me in the schematics W5008, where the circuitry is located for actuating the digital displays on the game?

A   The circuitry is located on page 3 and page 9.

Q   Could you explain to me how the microprocessor generates signals and actuates the digital displays?

A   Referring to page 15, the insert board is displayed, which shows the six 6-digit displays and the master display PC board.

Q   Where is that shown? Those are the separate, player 1, player --

A   Player 1 through 6, and then the master display.

As you will notice, the first digit and the sixth digit of each of the players 1 through 6 are not used,

they are not connected.

What that leaves us with is four digits and six players, which is 24 digits.

In addition to that, **on the master display** board there are also two digits which are not being used, the first digit and the fourth digit, and that leaves us with four additional digits.

Altogether that gives us 28 digits.

Q   What are the four digits used for on the master display board?

A   The master display board digits indicate the number of players during normal operation and what frame the player is at during normal operation.

Q   Each player, is that correct?

A   What all players are at; they all play the same frame at the same time.

Q   Go on.

A   Okay. The way the microprocessor presents information is that there are 16 pairs of digits; they are identified as strobes 1 through 16.

Q   Where are those represented; is that shown outputted on page 3?

A   Those are shown on page 3 on the connectors identified as 1J6 and 1J7, display strobe outputs 1 through 16.

Q   Okay.

A   In addition to that, on that same page are BCD outputs, and those are identified as A1, B1, C1, and D1, and A2, B2, C2 and D2.

The way the microprocessor puts digits on the displays is that a particular strobe, one of the 16, is enabled, and the information, two sets of BCD numbers are presented to the master display board.

Those numbers   then actually illuminate two different digits on two of the displays.

So, for example, strobe No. 1 would illuminate the 1,000s digit of player 1, and that would be the A1, B1, C1 and D1 pair; and the A2, B2, C2 and D2 pair would illuminate strobe -- or the 1,000 digit of player No. 4; and similarly for strobes 2 through 16.

Q   And would the microprocessor illuminate two digits at a time and then continue on and illuminate two more digits, and do that until it did all 16 pairs of digits?

A   That is correct.

Q   And then it would repeat itself, repeat and do 2, 2, 2, until it finished all 16 pairs, and then go back and repeat that?

A   It would do 2 for all of the digits except for strobes 13, 14, 15 and 16; there is no B side for those

strobes.

Q   So then it would do only a single one for those?

A   That is correct.

Q   Referring to page 9, can you explain to me how the segment data is transmitted to each display to illuminate a specific digit on that display?

A   If the microprocessor wants to present a particular number, that number is represented by a BCD, binary-coded decimal code on the lines A1 through D1 or A2 through D2.

To present the number 1 for example, on the A1 side, line A1 would be high and lines B1, C1 and D1 would be low.

That information would go into IC 6 or IC 5, and would be converted to represent the segments which are actually to be illuminated for the number 1. And in this case that would be the B segment and the C segment.

Those lines would then go high, which would be fed into IC 9, which is a level shifter, which would then transform the levels, the five volt levels, down to the minus 100 volt levels which are required for the gas discharge tubes, and those particular segments would light on either the master display or on players 3 or 2, provided that those strobes had been selected, or those digits had been selected.

MR. RIFKIN: Off the record.

(There was a brief discussion off the record, after which the taking of the deposition was resumed as follows:)

BY THE WITNESS:

A   Also the A1, B1, C1, D1 information would also be applied to the segments for player 1, in addition to players 2 and 3.

BY MR. SCHNAYER:

Q   Why would it be applied to players 2, 3, and 1; I do not understand?

A   We can only select one digit out of 16.

Q.   Each digit is a pair of digits?

A   We are illuminating in this case 28 digits; we can only select one unique digit out of any given tube.

So if we have four digits in each tube, we can do three tubes, which is 12 digits, and then 4 more on the master display. Those are all unique digits.

Now, we have another 12 numbers to worry about, and those are the players 4, 5 and 6, so we need another series of digits, or another segment decoder and digit driver for those numbers.

Q   And that is shown --

A   That is also shown on this print.

Q   That is either IC 7 -- excuse me -- yes, that would

be IC 7 or IC 8, depending on the game; is that correct?

A   That is correct.

Q   What causes the occurrence of the successive strobes 1 through 16 on page 9 to strobe the various digits of the displays?

A   The microprocessor.

Q   And is that caused specifically by the interrupt occurring and the microprocessor going into the interrupt service routine?

A   The interrupt service routine is where the microprocessor selects and displays the appropriate pair of digits.

Q   And each time the microprocessor goes into the routine once, do a certain pair of digits get illuminated, and then the next time it goes into the routine, another pair, and the next time another pair; is that correct?

A   That is correct.

Q   So therefore the strobe signals 1 through 16 would appear in a certain sequence; is that correct?

A   Yes, they would.

Q   And then they would repeat; is that correct?

A   Provided that the interrupt had not been masked for any reason, they would appear.

Q   Again, masking would normally not occur in any of the shuffle alleys except for diagnostics; is that correct?

A   For diagnostics; there are other times during the play of the game when the interrupt could be masked.

Q   And do you know when those other times are?

A   For example, in first powering up the game, first initializing everything.

Q   But during normal operation of the game while the player is playing and the button has been pushed and is actually in the playing mode.

A   There are times when the interrupt is masked as part of the background.

Q   Do you know when that occurs?

A   Whenever information is going to be changed in something that the interrupt routine also changes. We don't want the microprocessor changing it one way and the interrupt routine changing it another way at the same time.

So we mask the interrupt and we make the changes, and then we allow the interrupt; so that we don't turn a solenoid on and the interrupt routine turns it right back off, or vice versa.

Q   But the order of the occurrence of those strobes would be the same throughout normal operation of the game, even if there was some masking portion; is that correct?

A   They would sequentially, or they would go from 1 through 16.

MR. RIFKIN: Just a minute, Mr. Schnayer.

(There was a brief discussion off the
record, after which the taking of the
deposition was resumed as follows:)

BY MR. SCHNAYER:

Q   The time period between the occurrence of consecu-
tive strobes for the digital displays, would those be approxi-
mately equal?

A   Yes.

Q   Is there a portion in the memory of the system
where the segment information for illuminating each of the
segments is stored?

A   The segment information is not stored.

Q   What is stored?

A   The digit value is stored.

Q   And where is it stored?

A   That is stored on the scratch pad RAM.

MR. RIFKIN: I note for the record that that question
has been asked and answered.

BY MR. SCHNAYER:

Q   And during the interrupt service routine, does
the microprocessor access those memory locations to deter-
mine the value of those memory locations and then transmit
that information to illuminate the various segments of the

digital display?

A   The microprocessor, upon receiving an interrupt,

determines what strobe to output and fetches the corresponding

pair of digits and applies that information to the PIA I

on the CPU board.

Q   When that information is outputted through the

BCD segment data lines, and for example inputted into IC

6, how does that information get transferred to the digital

display?

MR. RIFKIN: I object, Mr. Schnayer, and I am going

to instruct the witness not to answer. That was just gone

into, and I apologize to you if you did not understand it,

but it is in the transcript and it will be available to you

in writing for your further study.

MR. SCHNAYER: I am interested specifically in

how the information is transferred through the device IC

6, how that information is inputted into the device and what

signal is present to transfer that information from the input

to the output, and that I do not believe was answered.

MR. RIFKIN: You may answer.

BY THE WITNESS:

A   IC 6 is a decoder. It takes whatever is at its

input and automatically outputs the corresponding 7 segments,

BY MR. SCHNAYER:

Q   Is there some signal which is necessary for that
information to be transferred?

A   No, there is not. The absence of the signal blank-
ing is all that is necessary.

Q   And the signal blanking is used for what purpose?

A   Signal blanking is used as a failure $\times$ *PROTECTION* it **is** basi-
cally a safety measure.

          If the microprocessor should fail or cease
to operate in the manner that it is supposed to, blanking
will disable all the other devices that the microprocessor
is connected to.

          MR. RIFKIN: Self-destruct.

BY THE WITNESS:

A   It is basically a software -- or a hardware protec-
tion circuit.

BY MR. SCHNAYER:

Q   Is there any blanking of the digital displays?

          MR. RIFKIN: Why don't you clarify that and say
during normal operation.

BY MR. SCHNAYER:

Q   During normal operation. Thank you.

A   Yes, there is.

Q   And how does that occur?

A   If any number greater than 9 is stored into the
BCD segment data, either on the A side or the B side -- or,
I'm sorry -- the A1 to D1 side or the A2 to D2 side, the
seven segment decoder will not output any information which
will result in a no **digit** being illuminated, no segments
being turned on.

Q   Is there any particular time during the operation
of the system that the digits are actually blanked using
the technique that you described?

A   The number of players digits; there are two digits
there, but we only display one.

      So that -- the most significant digit of those
two is always blanked during the game.

            MR. RIFKIN: Off the record.

                  (There was a brief discussion off the
                  record, after which the taking of the
                  deposition was resumed as follows:)

BY MR. SCHNAYER:

Q   When the signals are changed from one digit to
the next digit, and then repeated, is there any technique
used to blank the digital display to prevent any run-over
of one digit to the next?

            MR. RIFKIN: If you understand the question, you
can answer it.

BY THE WITNESS:

A   To the best of my recollection we blanked the digits,
we switched strobes, and then we introduced the new numerical
information.

BY MR. SCHNAYER:

Q   You switched strobes?

A   Well, we go with the next strobe; we go from strobe
1 to strobe 2, and then we apply the BCD information.

Q   Then you go to the next strobe and you apply the
BCD information, go to the next strobe --

A   No. Between any two strobes, what we do is --
let's say we're on strobe 1: before going to strobe 2, we
blank the digits that were at strobe 1, then we go to strobe
2, then we apply the new digits.

Q   So there is a blanking after each digit is actuated?

A   I am confused by your use of that term, just in
that --

Q   Well, when you answered the last question you said
you blank the digit and you go to the next strobe. What
did you mean by that?

A   That the segment information was actually removed
from that particular digit.

Q   And how was it removed?

A   By storing an invalid code into the PIA.

Q   And that would be 9 or above?

A   It would be above 9.

Q   Above 9.

Referring to the schematics again, is there any particular circuitry that is used to actuate the solenoids that is depicted in the drawings?

A   Page 6 shows the PIA IV.

Q   Do you have a characterization of the actuation of the digital displays?

MR. RIFKIN: Digital displays?

MR. SCHNAYER: Digital displays. I am reverting back to that.

BY MR. SCHNAYER:

Q   Would you characterize that as a multiplexing technique of actuating digital displays?

A   Yes, I would.

Q   The solenoids are actuated through PIA IV by the CPU; is that correct?

A   Yes.

Q   And the solenoids are actuated in a direct drive fashion; is that correct?

A   Could you clarify what you mean by "direct drive"?

Q   Do you have any understanding of what direct drive means?

A   The microprocessor turns them on.

Q   And would you consider that to be the technique used for turning on the solenoids on page 6?

A   The microprocessor turns on the individual solenoids.

Q   Could you explain to me how the microprocessor would actuate any specific solenoid?

        MR. RIFKIN: Mr. Schnayer, I don't want to spend time on this subject matter.

        The solenoids here are driven in precisely the same way that the pinball solenoids are driven; you have been through that subject matter.

        I cannot see that this is valid use of our time. I would ask you to move on.

BY MR. SCHNAYER:

Q   Is that the case, are the solenoids driven in exactly the same manner as depicted in this diagram and contained in the Taurus game as they are in the pinball games?

A   The solenoids are energized in the same manner.

Q   Is there any difference at all?

A   The only difference that I can think of is that one of the special solenoids is energized by the microprocessor in the Taurus game, whereas that is not the case in the pinball game.

Q   When you say the special solenoids, which ones
are you referring to?

A   I am referring to the circuitry which is associated
with switch-triggered solenoid 1 drive on page 6.

Q   And in what way is that different than the pinball
machine?

A   In the normal operation of the pinball machine
the microprocessor does not energize special solenoids.

In the normal operation of the shuffle alleys
the microprocessor does energize a special solenoid, special
solenoid No. 1.

Q *   What is special solenoid 1 used for?

A   It is used for the coin lock-out coil.

Q . And the coin lock-out coil, what does that do?

A   That permits or does not permit additional credits
to be posted via the coin switches.

When the coin lock-out coil is energized the
machine will accept coins, and consequently additional credits
can be posted; when the coin lock-out coil is de-energized,
the coins just are returned to the player.

Q   On the pinball machine coins are always returned
to the player when the machine is being played in normal
operation of the game; is that correct?

A   No.

Q   You can, during the operation of the game, increase
the number of credits by putting a coin in?

A   Yes, you can.   Until the maximum credits is reached.

Q   And then it would lock out?

A   Then it will de-energize.

Q   How is the motor actuated to reset the pins?

A   The pin reset motor is actuated when coil 11 is
energized.

When coil 11 is energized, it closes a set
of contacts; those contacts then supply AC power to the pin
reset motor, which then operates for one cycle and then de-
energizes.

(There was a brief recess, after which

the taking of the deposition was resumed

as follows:)

BY MR. SCHNAYER:

Q   I notice, referring to page 19 of document W5004,
that there appear to be more than 10 switches, while there
are only 10 pins.

Could you tell me the reason for that?

A   The reason for that is that pin switches pull up
more than one pin and certain switches are used in combination
with other switches just to pull up a single pin.

Q   And what determines that?

A   Well, this system is an exact duplicate of the electromechanical playfield; it is the same, it was done exactly the same way the electromechanical shuffle alley was done.

For example, if by rolling over certain switches you get all the pins except for the 4, the 7, and the 10, well then by rolling over switches I and J, you may get the 4 and the 7 but not the 10; but if you roll over switches I, J and S, then you will get the 4, the 7 and the 10 pin.

So, to accommodate for the different types of combinations of pins is why there are more than one switch.

Q.   Now, as the puck is sent down the field by a person, shot down the field, and rolls over some of the switches, as it rolls over a switch and that switch is sensed by the circuitry and stored in a position in RAM -- is that correct so far -- what would happen? It would be stored in a position in RAM?

A   That is not exactly correct.

There would be a debounce time first; it would be put into a counter register -- well, the switch would be checked to see if it was stuck first; and if it was not stuck, it would check to see if it was being debounced; and if it was not debounced, then it would check to see if there was a counter available; and if there was a counter available

and the other conditions were not met, it would put it into

the counter.

That is the way programmers think.

Q   I understand. That is exactly the way I wanted

you to answer, full answers.

And then when it is in the counter and it

has been checked for debounce, it would be stored in the

memory locations for that particular switch closure; is that

correct?

A   It would be put into the counters which would serve

as the storage locations.

Q   How many counters are there?

A   There are four switch counters.

Q   And how would that information of the switch closures

be processed?

A   Once the switch scanning had been completed, then

the executive loop would look into the counters to see if

there were any switches that had been detected but not acted

upon yet.

If a switch was found that had been detected

but not acted upon yet, the microprocessor would change the

information in the counters to reflect the fact that it had

been acted upon, and then act upon the switch.

Q   And when you say acted upon, how does that actually

occur?

A   Well, the microprocessor has certain routines in the background that it uses in order to service different types of switches.

For example, the switch No. 1 is the switch which selects the game. Well, there is a location in the background, or a group of locations, where, when that switch is closed, the flow of the program is transferred to an order to accomplish that function, and then the program returns to the executive loop.

A pin switch may not be operated or may not occur in that same fashion.

Q   So when a switch is detected, it can either be acted upon immediately or it could be acted upon after the microprocessor has returned to the executive loop; is that correct?

A   Yes.

Q   Would you give me an example of when the switch would be acted upon immediately?

A   Well, coming through the executive loop, if the very first switch in the switch counters was found not to have been acted upon, that one would be acted upon.

And then, upon a return to the executive loop, the first switch and the second, you know, the first counter

would be checked, and if it was found that that had been

acted upon, then the second counter would be checked and

the third and the fourth.

Q   So during the executive loop it checks each of

the counters to determine whether they should be acted upon,

and then when the switch matrix is strobed the next time,

those different values could be loaded into those switch

counters if the switches are actually actuated -- is that

correct -- and if a counter has been acted upon already?

A   If a counter is available, then different switch

information could be put into it; if a counter is not avail-

able, then that information would not be put into the switch

counters.

Q   If the puck rolls over more than one switch at

a time and those are sensed by the microprocessor together,

would those be stored in different registers?

A   The switches are treated as independent events,

and they are kept track of in those switch counters.

So if three switches are closed, and there

are only two counters available, then two of the switches

would go into the counters and the third switch would be

pending.

Q   And when you say "pending," what do you mean by

that?

A   I would have to look at the listing to see if the third switch would be lost.

MR. RIFKIN: Jerry, I would like to talk about this subject --

MR. SCHNAYER: I will just be a second, I want to get this.

BY MR. SCHNAYER:

Q   Under what circumstances could it be lost?

A   If the switch counters were full.

Q   So therefore it is possible to shoot the puck down the lane, and actuate certain switches, roll over certain switches, that should give a certain score, but that score does not actually occur?

A   Well, in practice that is not what happens because the microprocessor can service the switches much more quickly than they actually happen.

But it is conceivable that if more than four switches were closed during the same interval of scanning, or that there were four switches being in the process of being debounced, that another switch closure that would occur before any of those counters had timed out would be in fact missed.

Q   If all the pins are in a set position where they are down, they have not been acted upon, and the puck rolls

over several switches, it goes, for example, covers switches

for pin-- switches N-8, E-F, K-L, and X-y --

A   All right.

Q   -- that is a total of 6 switch closures; is that

correct?

A   Switch F is not really a separate microprocessor

switch.

Q   Is that connected somehow to E?

A   Yes, it is connected to E.

Q   Could you explain to me how it is connected?

A   They are connected in series.

Q.   Is that shown?

A   Shown on page 25 of document W5004.

Q   So in order to actuate that switch both of the

E and F would have to be closed in order for the microprocessor

to sense a switch closure?

A   Yes.

Q   Is that also shown on page 12 of W5008, where some

of the switches are shown connected in series, for example

switch 8SW9?

A   Yes.

Q   What is the reason for doing that?

A   Again, because the puck must close both of those

switches simultaneously as opposed to just one of the two

switches.

That enables us to more accurately determine the position of the puck.

Again, this is an exact duplicate of the electro-mechanical shuffle alley, so those switches would do -- they were done the same way.

Q   If a puck would roll over switches A-B straight back through all the other switches, for example, switches G-A, A-H --

A   The puck is not that wide.

Q   So it could roll over A-B; is that correct?

A.   No. I think the puck is not quite that wide.

Q   Looking at the diagram, page 19 of BD5004, it appears that there is a puck shown --

A   No. This is the pin; this is pin 1, pin 2, pin 3. This is the position of the pins above the switches,not the pucks themselves.

The puck is about the width of the W-V interval. These two lines are the strike zone, in fact.

So making switches A-H, O-P, V and W, would cause a strike.

Q   Now, my question is, if it would make all of those switches that you have just suggested in the strike line, that is a total of 5 switches.

A   It is a total of 6 switches.

Q   Six switches.

How would that information be stored to determine that all of those switches had been closed at the same time -- or, in succession, for a puck going over those switches?

A   Each of those switches sets up certain contingencies where the fact that switch H is seen after switch B but before switch O and switch P and switch V and switch W, all those things put together is what establishes what type of a hit, so to speak, that you have made on the pins.

And that is actually done via software. There are rules and priorities where certain switches will pull up certain pins.

MR. RIFKIN: I think there is a lack of communication here.

Your question seemed to be: How does the processor handle switch closures; and he is answering how the processor portrays a strike.

BY MR. SCHNAYER:

Q   Okay. There are four counters.

A   Right.

Q   And there are six switch closures; and you said that only four switches can be stored in those counters at

one time.

A   Okay, but four simultaneous switches. These events happen at a discrete interval of time.

The puck has to travel the distance from switch B to H; by that time the processor has already handled switch B, and that counter is available again.

Q   Now, does it store the information, the fact that switch B has been actuated by the puck, someplace in order to make the final determination of what pin should go up and what pin should stay down?

A   Yes. There is -- there is what is called a pin contingency matrix which represents what things should happen as a result of which switches.

Q   What is the pin contingency matrix?

A   It is a location in the scratch pad RAM which is modified or changed depending on which switches are made and when they are made and which conditions exist.

Q   And so, for example, that would store the fact that those switches, for example the strike switches, the switches in the strike zone, have been actuated, and at some time, how would the system know to score a strike when that occurred?

A   Because -- nothing would actually happen until switch 36 was closed, the back row switches.

Once switch 36 had been closed, then the micro-
processor will examine which of the other switches had been
closed prior to switch 36 by going into the pin contingency
matrix to find out what switches set what conditions, and
that is how it will know what pins to pull up and what pins
to leave down and which switches on the next throw of the
puck will make a strike or a spare happen, or blow.

Q   So when switch 36 is actuated, the microprocessor,
is there a special routine it goes into to determine what
pins have been actuated as represented in the pin contingency
matrix?

A ·   Yes.

Q   And it will score the player's score accordingly?

A   Well, that again is dependent upon the game.

Some games have -- for example, one game has
a single shot, all you get is one shot. So, that's all you --
if you do not get a strike, when you get to the back row,
that is the end of that particular frame; you go on to the
next frame.

Certain games have other rules which would
allow you to score different scores. A strike in one game
may be worth 30 points; it may be worth 500 points, or 100
points.

Q   The actual updating of the score, that occurs

only after the switch 36 has been actuated; is that correct?

A   The updating of the score is a function of the executive routine.

Q   For example, if a puck went down and hit certain, ran over certain switches, and then that would represent certain switch closures would be stored in the pin contingency matrix; is that correct?

A   Yes.

Q   During that period of time would the value stored in the memory representative of what the value should be displayed in the digital displays be changed?

A   It could be, depending upon the conditions for that particular game, and depending on whether it was the first time switch 36 was closed in a frame,or the second, or the fifth, or whatever, and depending upon whether or not the player had a strike in his previous frame, or a spare in his previous frame, et cetera.

         Those are all conditions which will affect when the actual scoring takes place.

Q   But the scoring will not take place before that switch 36 is hit; is that correct?

A   That would be correct.

Q   And also the changing of the values in the lamp matrix of what should be displayed, as contained in the

memory, that will not change until the switch 36 is actuated

for each shot; is that correct?

A   That is not correct.

Q   Why is that not correct?

A   Well, because the displaying of lamps is indepen-

dent of the switch closures for certain of the lamps; and

for other lamps, it depends on when the first switch had

been closed.

Again, there are various games, the various

games have different rules.

In one of the games there is a series of light

WHICH
switch sequences in front of the pins, and they just continue

to sequence until the very first switch has been made.

When that first switch has been made, wherever

the lights are in the sequence, stop. That does not have

anything to do with the score until the back row switch has

been detected, and until that particular frame has been ter-

minated.

Q   And the solenoids for lifting up the pins, those

would not be actuated until the puck had passed the switches

and actually actuated one of the switch 36s?

A   No, that is not true.

Q   Why is it not true?

A   The actual switches themselves will pull pins up

prior to getting to switch 36.

So that a very slow puck will pull the pins
up as the puck passes over the switches, and when it gets
to the back and then returns, that particular half of that
frame, if it is a two-shot frame, will be complete.

Q   Could you explain to me the various games that
are played on Taurus?

A   Referring to page 6 of W5004, there are five differ-
ent types of games.

The first game is called Regulation Play,
and the scoring in that game is identical to the scoring
of normal bowling: Strikes are 10 points plus two other
shots; spares are 10 points plus one other shot; and opens
are open. In the 10th frame there are a maximum of three
shots, and the maximum score is 300 points.

Line-Up is a game where the strikes score
30 instead of 10, and spares score 20. Every time a strike
is made the value for that strike is 30 points and an extra
frame is awarded to the player. The value of the extra frame
is indicated on the lights on the hood. And it increases
every other frame.

So if I make a strike on the first frame,
I get another frame in my first frame, and I am shooting
for a possible value of 100 points -- 200 points for a strike,

100 points for a spare.

Q   Which shows up as a light?

A   Right, it shows up on what's called the hood lights.

If I get a strike on the second frame, I get 30 points, but I get a chance to shoot at another frame, but the values for the strikes are higher, and the spares are higher.

Now, if I get a blow -- what is called a blow is not getting all 10 pins -- then I do not get the extra frame.

When I finally get to the 9th frame, or the 10th frame,if I get a strike, I get another frame, and now I am at the maximum value for the strike.

So that is what the game Line-up is

Q   What is the game Flash Scoring?

A   Flash Scoring: As I have indicated before, there are lights ahead of the switches --

MR. RIFKIN: Mr. Schnayer, are you sure the description on page 6 isn't sufficient for your purpose, that you need to have this witness describe each of these games?

MR. SCHNAYER: I would like the witness to describe them. I am interested in that.

BY THE WITNESS:

A   As I have described before, there is a row of lights

ahead of the number 1 pin on the playfield. Those lights

and the lights in the hood sequence one after another, they

light from the left side, the first one lights, the second,

the third, the fourth, until they get to the right side,

and then they all go, there is just a single light lit.

When they get to the end, they come back,

and they continue to sequence until the puck has crossed

the first switch.

Depending on which light is lit, when the

first switch is made, first of the pin switches is made,

will determine what the value is for a strike or a spare

or a blow.

If the puck crosses when the center lights

are on, then a strike would be worth 800 points. If it crosses

when the very right-hand or the very left-hand lights are

on, it would be worth 200 points, or 100 points for a strike.

So the value is determined by where the lights

are when the first switch is made.

BY MR. SCHNAYER:

Q   What causes the lights to change?

A   The microprocessor is causing the lights to advance

from one position to the next.

Q   How does it do that specifically?

A   It is done as a timing — it waits a certain amount
FUNCTION,

of time and then it moves the light over.

Q   And that is done using the interrupt signal, so many interrupt signals, in a counter; is that correct?

A   It is porbably done just using a delay routine.

Q   How is the game 800 played?

A   The game 800 is again a two-frame for frame type of a game. Making a strike allows you to shoot an additional frame for that same frame.

Making a strike scores 80; a spare is 40. If you make a strike, you get an additional frame, and the additional frame can score either 300 or 100, up to 800 or 500, depending on if it is a strike or a spare.

Q   And Strike 90, how is that played?

A   Strike 90 is a repetition-type of a game. The player frame continues as long as he continues making strikes. So for frame No. 1, if I shoot a strike, I am still in frame No. 1 and I get to shoot again; and if I shoot a strike, I am still in frame No. 1, and I can shoot again. And I can shoot as many strikes consecutively as I can.

The very first time I do not get a strike,then you go on to the next frame, or you complete that frame and that completes frame 1 and then you go to frame 2, et cetera, up to frame 10.

Q   Are there any lights contained on any of the games

other than the ones that you have just described? For example,
there is a row of lights on the hood -- was that the hood?

A   The hood.

Q   On the hood, and there is a row of lights in front
of the pins, and of course there are some on the back glass.
Are there any other lights?

A   There is a light in the coin box to indicate that
there are credits.

       And on some games there are some additional
lights that are on the insert.

Q   The insert; what do you mean by the insert?

A   The insert is where the master display and player
displays are mounted.

Q   And what are the functions of those lights?

A   They are used for different games.

Q   Are there any lights that are used which are neces-
sary because of the different play of the game, in other
games other than Taurus?

A   In the game King Tut, there are three additional
lights.

Q   And what are those used for?

A   They are used for a game called --

Q   You are referring to what document now?

A   W5005.

-- they are used for a game called Pyramid.

Q   And you are on page what?

A   I am looking at page 6.

Q   How does that operate?

A   In that particular game the player must make three strikes before getting an extra frame.

If he only makes two strikes -- in frame 1, if he gets a strike, that ends frame 1; in frame 2, if he gets a strike, that ends frame 2; if in frame 3 he gets a spare, that does not do him any good, he goes to frame 4; if in frame 4 he gets a strike, that means he has made three strikes, now he gets an extra frame.

And that extra frame, he can score 800 points for a strike and 500 points for a spare.

Q   And that is represented by the three lights that you mentioned?

A   Yes.

Q   What is a beer frame?

MR. RIFKIN: I object, Mr. Schnayer. I instruct him not to answer, because this is so far afield that it is an insult.

MR. SCHNAYER: I am trying to understand how the game operates.

MR. RIFKIN: Well I suggest you inquire of any

bowler what a beer frame is and not waste this witness' time
and my time.

Move on, please, or else we will adjourn right
now.

You are free to read these documents on your
own time.

MR. SCHNAYER: Well, it does not explain what a
beer frame is.

MR. RIFKIN: I do apologize for not educating you.

MR. SCHNAYER: We will bypass that.

(There was a brief recess, after which
the taking of the deposition was resumed
as follows:)

BY MR. SCHNAYER:

Q   During the manufacture of the Taurus game, I believe
you testified that it uses common boards, the same boards
as the pinball machines that were built at that time; is
that correct?

A   With the exception of the slave display board.

Q   Okay. Were those boards that were used for both
of those games, other than the slave display board, were
those manufactured at the same facility?

A   I believe so.

I do not deal with manufacturing of boards,
you know, as far as if we get them from vendor X in Mexico,

or whatever.

Q   Is that the same, the same case today for the pins and slots that are being manufactured?

MR. RIFKIN: You do not mean what you just said. You just said "slots".

BY MR. SCHNAYER:

Q   Excuse me. The pins and the shuffle alleys manufacetured by Williams?

A   That condition is the same today, the same boards.

Q   And are replacement boards sold by Williams?

A   I believe so.

Q   And are those boards the same board as sold for either -- can be used in either a shuffle alley or appropriate pinball?

A   The parts catalog supplies details that those boards can be used in any of those games, whether they be shuffle alley or pinball.

Q   And so they are actually sold that way, as either being used in a pinball game or in a shuffle alley; is that correct?

A   Yes.

Q   Do you know where the boards are manufactured for the shuffle alleys or the pinball machines?

MR. RIFKIN: You can answer that yes or no.

BY THE WITNESS:

A   Yes.

BY MR. SCHNAYER:

Q   And do you know where they were manufactured at
the time that the Taurus game was being manufactured by Wil-
liams?

A   I believe so.

Q   Where was that place at the time Taurus was being
manufactured?

MR. RIFKIN: I will instruct the witness not to
answer. I believe that that is confidential information,
which is irrelevant to this lawsuit and which is directly --
it is the kind of information that a direct competitor has
no need to know, and should not be able to go into without
a specific reason for it.

MR. SCHNAYER: I believe those questions, similar
questions, were asked of Mr. Stroll, and those answers were
given.

MR. RIFKIN: Then you do not need to ask this witness.

MR. SCHNAYER: I am trying to find out if, specifi-
cally if certain boards were made for the shuffle alley in
a certain place by a certain company, or if they were totally
interchangeable and it made no difference where they came
from.

MR. RIFKIN: Well, I think the only question I
would permit him to answer is: Are these boards made in the
same place as the place Mr. Stroll testified the pinball
game boards were made.

MR. SCHNAYER: Okay. Of course, he does not know
what Mr. Stroll testified to.

I believe he said that there was a company
that was commonly owned either by Williams or Xcor that pro-
duces the boards for Williams, does a good portion of them.
I believe he said there were some, I am not sure, but I believe
some were also made in Mexico, probably by that company.
But I know that he said there was a company, and it was tes-
tified as to.

I am wondering if that company makes boards
that were used in both the pinball and the shuffle alleys.

MR. RIFKIN: Why don't you ask him this question:
Are the shuffle alley boards made at the same place that
the pinball boards were made.

BY MR. SCHNAYER:

Q   That is a valid question.

Could you answer that question?

A   Yes, they are. They are interchangeable.

Q   Are there any special noise problems that are created
by using a motor in the game, actuating the motor?

A   The only problem that I am aware of noisewise is interference with our sound board, which can be created by some of the arcing that is caused when the contacts open and close.

There have been various solutions to remedy that.

Q   I show you a document produced by counsel in this litigation labeled W5010 and ask you if you recognize that to be a copy of something you have seen before?

A   Yes, I have.

Q   What do you recognize that to be a copy of?

A   That is a copy of the first sheet on the King Tut schematic.

Q   Does that have any significance -- when you say the first sheet, what do you mean by that?

A   Yes, it is this sheet (indicating).

Q   It is a portion of the sheet from that King Tut manual?

A   Right, from the King Tut, W5009.

Q   Have you ever seen this particular copy before, or a copy that looked like that?

A   This sheet was made from the original that this sheet was made from (indicating).

Q   Do you know why it was made in that form?

A   Because it was found in the files, and as part

of the search for the prints, that drawing was there, so

they made a copy of it.

Q   You mean a copy of the portion of the drawing.

      I show you a copy of a document labeled W5011.

It appears to be a schematic with the name "Shuffle sound

converter assembly" --

      MR. RIFKIN: Jerry --

BY MR. SCHNAYER:

Q   -- and I ask you if you recognize it to be a copy

of something you have seen before?

A   Yes, I do.

      All these prints are the prints that the prints

that you have in the schematics were made from.

      These are the actual full-sized drawings that

were reduced and put into this book. That is what all those

prints are.

Q   And by "these prints" you mean the ones that are

5011, 5016?

A   Yes.

Q   Were these used in any way in the development of

the original game?

A   Not in the development of the original game.

Q   These are just copies of the larger diagrams of the smaller versions that are contained in the different manuals?

A   Right.

For example, this is the original, or a copy of the original pin panel solenoid drawing that was made up for the Topaz manual.

Q   And this being 5013; is that correct?

A   Yes.

Q   Now, 5012 has certain areas that are blanked out. Do you know why those areas were blanked out?

A   Those areas are the areas which contain the title blocks and the name of the game.

This same print is used in all the games, so that is why those areas show up as blanked out.

The printer blanked those areas out, or the person who is responsible for doing our manuals had those areas cut out of the prints so that -- it is the same schematic as in Taurus as it is in King Tut as it is in Aristocrat.

So instead of redoing the schematics and putting a new name on, the printer just strips in the name.

Q   Is that the same reason why the areas are blanked out for W5015?

A   Yes.

Q   And W5014?

A   Yes.

Q   5015, it says "World Cup" -- this is the area that
is blanked out specifically, you can read what was blanked
out -- it says "World Cup back box."

Is there any significance of that?

A   The significance is that that is -- again, this
is one of the prints which was contained in the prints for
the solid state shuffle alley; and, in fact, this is a print
which was used to make up the drawing that you find on page
1 of each of the schematics.

That was the sepia that the original changes
were made on.

Q   And World Cup, that is the area that has been blanked
out, that was a pinball machine schematic?

A   World Cup was a schematic of one of our pinball
machines.

Q   When you joined Williams and started working on
the project of shuffle alley, what was the first thing that
you did with regard to that project?

A   I was responsible for putting together the manual,
the first manual for the shuffle alley.

Q   And which manual was that?

A   That was the manual for Topaz.

Q   And that was W5001; is that correct?

A   Yes.

Q   Now, when you were working on that manual, putting it together, approximately how long did it take you to do that?

A   I do not recall.

Q   Was it more than a couple of months?

MR. RIFKIN: If you know.

BY THE WITNESS:

A   I really do not recall how long it took to do this manual.

BY MR. SCHNAYER:

Q   Besides doing that manual, what was the next thing that you undertook with regard to the project?

A   As pertains to shuffle alleys?

Q   Yes.

A   Later on I began doing programming, and as part of my duties I programmed the foregrounds for the shuffle alleys.

Q   Approximately when did that start?

A   Well, I programmed the game Aristocrat and all subsequent games, so that would be around August of '78, so it would be prior to that date.

Q   Sometime prior. Within a couple of months or so?

A   At least. It was probably around March of '78.

Q   Did you have any other involvement in any pinball machine or shuffle alley machine project prior to that time that you started the programming of the shuffle alley?

A   Well,my duties have included writing MANUALS memos, teaching service schools, teaching distributor servicemen how to repair boards, repairing boards, doing programming, so I have done quite a few things.

Q   And you were doing that prior to March of 1978; is that correct?

A   Yes, and including up to that time.

Q   When did you first get involved in programming pinball machines?

A   Right around March of '78 is the best I recollect.

MR. RIFKIN: Pinball machines or shuffle alleys?

BY MR. SCHNAYER:

Q   Pinball machines.

A   It was right around that time -- where I was actually responsible for a specific game.

Q   Did you have any direct contact with the people that were involved in the design of the original shuffle alley?

A   Of the original solid state shuffle alley?

Q   Solid state shuffle alley.

A   Well, I was one of those people.

Q   What was your involvement in the beginning?

A   My involvement was that we were putting the solid state system into that -- into the electromechanical shuffle alley.

Q   What was your specific involvement prior to March of 1978?

A   I was doing schematics and wiring diagrams for the solid state shuffle alley.

Q   When you say you were doing schematics and wiring diagrams, that was with regard to preparing these manuals; is that correct?

A   That is correct.

Q   Were you involved in the design work at all?

A   I do not know how to answer that question.

Q   Were you involved at all in any of the design work of the solid state shuffle alleys?

MR. RIFKIN: Well, the witness has stated he does not understand your question. I think you had better change your phraseology.

BY MR. SCHNAYER:

Q   Is the problem you do not understand what "design"

means?

A   That is what the problem is, because the process
of the solid state shuffle alley encompasses the hardware,
it encompasses the software, it encompasses documentation,
it encompasses manufacturing.

And I had something to do with one of those
phases, so in that respect I had something to do with the
design of the game.

Q   Did you have anything to do with the hardware design?

A   As I have stated before, the hardware design had
been completed on the solid state boards prior to my coming
to Williams.

Q   Was there any evaluation to determine whether the
hardware should be used that was used in the pinball machines
for the shuffle alley?

A   We decided to take an electromechanical shuffle
alley and to put our existing hardware from the solid state
pinball machine into it, and to make it work. And that is
what we in fact did.

Q   Was there a first prototype that was built?

A   There was an electromechanical game that was converted.

Q   And was that converted using the boards that were
used for the pinball machine; the first model that was built

when you were first converting it, did you use boards that

were from a pinball machine?

A   Yes.

Q   Was a development system used at all?

A   Yes.

Q   Was that used prior to actually using the boards?

A   No.

Q   What was the development system used for?

A   The development system was used to develop the

software.

Q   Do you remember when a first prototype was actually

running? .

A   As best I recall it was sometime in October of

'77 or November of '77.

Q   Was that actually functional?

A   Yes. We showed a shuffle alley at the MOA Show

of 1977, as best I recall.

        It was a complete solid state shuffle alley.

Q   When was the programming complete on the first

model?

A   Which programming are you referring to?

Q   The background programming.

A   The final listing of the program identifies the

date as being February 24, 1978, as when the control program

was complete and ROMs were released.

Q   That is the background program?

A   That is the background.

Q   When was the foreground program complete?

A   Well, the foreground program for that particular

game was complete at the same time or prior to that time.

Q   Was there a date on the program listing that you

have?

A   There is no date on the foreground, just on the

main program.

Q   And you are referring to the documents which are

the foreground and background programs for the shuffle alleys;

is that correct?

A   I am referring to the Topaz foreground and back-

ground assembled listing.

Q   Were you actually involved in the background software

design of the shuffle alley?

A   In the design of the background software?

Q   Design of the original software.

A   No.

Q   Were you involved in the manufacturing of the Topaz

which was the first shuffle alley manufactured by Williams

that was solid state?

A   Do you mean did I actually build the games?

Q   Were you involved in manufacturing in any sense?

A   Well, again because I was responsible for the documentation, I was involved with manufacturing in that respect. My manuals went into the games.

Q   Are you aware of any problems that occurred on the manufacturing of the games?

A   Nothing other than the usual manufacturing problems.

Q   What were the problems specifically?

A   People did not know what they were doing initially.

Q   Did you have any problem relating to things such as noise?

A   Not other than what I have mentioned.

MR. RIFKIN: Mr. Schnayer, I am going to cut you off very shortly. I will just give you a couple of minutes more.

BY MR. SCHNAYER:

Q   Were you responsible for the problems that occurred during the manufacturing of the Topaz game?

A   You mean did I cause the problems?

Q   Were you responsible for solving those problems?

MR. RIFKIN: I object to the question. He has not testified as to any problems.

BY MR. SCHNAYER:

Q   Well, there were normal manufacturing problems.

I mean any type of problems, if there were

problems. Who was responsible for it?

The question is, first, were you responsible?

A   I was not responsible for fixing problems.

Q   And who was responsible?

A   Whoever was in charge of production over on the

shuffle alleys.

Q   And who was that?

A   I do not know.

Q   From the engineering group was somebody responsible

for that?

A   From the engineering group it was Ken Fedesna and

Dave Poole; we were part of the advanced development team,

and we were responsible for fixing anything that went wrong.

Q   Are you aware of any testing that was done relating

to the first development work done on the shuffle alleys?

A   Yes.

Q   Were you involved in the actual testing that was

done?

A   Yes, I was.

Q   What was your involvement?

A   I was an observer to the testing.

Q   When you say observer, what do you mean by that?

A   I stood by and I watched them perform the tests that they were doing, and I also participated in playing the game.

Q   When did this testing occur?

A   This testing occurred during October and November of '77.

Q   Was the testing documented in any way?

A   No. The testing consisted of playing an electro-mechanical game and playing a solid state game and making sure that the two played identically. They were completely transparent to the player.

Q   And after that occurred and it appeared they played identically, it reached the stage where you considered it to be in a state worthy of putting into production; is that correct?

A   There was one additional phase that we went through, and that was the static immunity testing which was performed.

Q   What type of static immunity testing was performed?

A   The shuffle alley was subjected to high voltage to see whether or not the system could withstand high voltage being applied.

Q   Do you know why that was done?

A   To keep the kids from cheating the game and destroying

the PC boards by the use of static electricity.

Q   Do you know when those tests occurred?

A   Those were done in October and November, when the
system was completed.

Q   Do you know who performed those tests?

A   Ken Fedesna and Dave Poole.

Q   And after those tests were complete, was the game
considered ready for production?

A   Yes, it was.

Q   Were there any other tests that were performed
besides the ones you have just mentioned?

A   No.

         Again, they played the game considerably to
make sure that it played correctly, and that was it.

Q   Were there any, to your understanding, notebooks
kept by any of these people recording the noise tests that
they had done?

         MR. RIFKIN: I object to that question.

         As we indicated to you previously, a search
has been made for all documents, and if any such documents
existed, they would have been produced to you.

         MR. SCHNAYER: The witness might remember.

         Again, looking for documents, you sometimes
forget certain areas.

BY MR. SCHNAYER:

Q   To your understanding. You can answer the question.

A   There were no notebooks kept. The thing either worked or it didn't work.

And we worked with it until it worked the way we wanted it to.

Q   When the game, the first game of shuffle alley was into production, was there a sample group of games that were built and put out in the field to test them?

A   That I am not sure of.

Q   Who would know about that?

A   To the best of my knowledge we did not prototype any of the solid state shuffle alleys; we just directly went into production and they went out into the field.

Q   Do you know why they were not prototyped?

A   Because the prototype that we had worked correctly and there were no problems with it, so we put it out there.

Q   Who would know if there were prototypes that were put out?

A   I am sure Mike Stroll would know.

Q   Anybody else? Mr. Fedesna?

A   Ken might know, but, like I say, I was there at the time and I do not recall any prototypes being made of the shuffle alley.

We just -- we built them.

Q   When the first units were put into the field, were there any records kept as to any problems that occurred with the units?

A   That is a marketing function, and I am not familiar with that.

I do not think that they have it -- a game evaluation report.

Q   Was anybody in your group, to your understanding, responsible for determining how the games were operating in the field?

A   No.

Q   You do not have an understanding as to whether there was somebody or not? That is your answer?

A   The only interface we have to the field is via either complaint letters or telephone calls, and as best I know there were no complaint letters, and the phone calls were handled as they came in by the person responsible for handling phone calls.

Q   And who was that person?

A   There were several people who handled our WATS line calls.

Q   And were any of those complaints conveyed to anybody in the advanced development group?

A   To the best of my recollection there were no com-
plaints that we received about the shuffle alley.

MR. RIFKIN: Mr. Schnayer, we have reached the
point where I feel we have to adjourn.

I do not know whether you are through or not,
but it is 4 minutes to 5:00 o'clock, and I have other obliga-
tions I have neglected here.

MR. SCHNAYER: At this point I will adjourn sine
die. I think we have covered most of the information I am
interested in, except I have had no time to review my notes.
I would need a few minutes to check the areas that I would
like to go into, and I may want to call the witness back
for a short period of time.

MR. RIFKIN: I do not agree to that, of course,
but you have your rights.

MR. SCHNAYER: Well, of course, you said that if
I did not finish with him today, that we could reschedule
the occurrence of this deposition.

MR. RIFKIN: No, I did not say that. And if you
think I said that, I emphatically deny that I said such a
thing.

MR. SCHNAYER: Well, that was my understanding.

But the problem is, I have to be able to finish
the witness and get the testimony I need. I have only had

a day, and of course we have had different interruptions

for various reasons. And to cut me off after a day, I just

do not think is reasonable.

MR. RIFKIN: Well, the point is you can renotice

this as you see fit, and that is fine with me, but I am not

agreeing to produce this witness voluntarily at any time

after this.

MR. SCHNAYER: Okay, we will deal with it as it

comes up.

(Whereupon the taking of the deposition

was adjourned sine die.)

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